



# CALIFORNIA INSTITUTE *of* TECHNOLOGY

*One Hundred Thirteenth Annual Commencement  
and Inauguration of President Jean-Lou A. Chameau  
June 8, 2007*



Cover: Caltech's commencement ceremony,  
by Joseph Stoddard.

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CALIFORNIA INSTITUTE  
*of* TECHNOLOGY

*One Hundred Thirteenth  
Annual Commencement*

*and*

*Inauguration of President  
Jean-Lou A. Chameau*

Friday Morning at Ten O'Clock  
June Eighth, Two Thousand Seven

IN HIS DIARY ENTRY of September 1, 1891, Pasadena philanthropist Amos Throop wrote, “Planted potatoes, cleaned a water pipe, husked the corn . . . . In afternoon, saw Mr. Wooster and rented his block for five years . . . and hope I have made no mistake.” Were he here today, Throop could rest assured in his decision, for the building of which he wrote, the Wooster Block, was rented for the purpose of establishing Throop University—the forerunner of Caltech.

In November of that year, Throop University opened its doors to 31 students and a six-member faculty. Could anyone have imagined then that the school would become a world center for science and engineering research and education? Perhaps, for in the first year, the board of trustees began to reconsider the mission of the school. In 1892, they decided to emphasize industrial training, and in 1893, reflecting this new focus, renamed the school Throop Polytechnic Institute.

Throop might have remained just a good local school had it not been for the arrival in Pasadena of George Ellery Hale. A faculty member at the University of Chicago and a noted astronomer, Hale settled here in 1903. From that time until his death in 1938, he made significant contributions to Pasadena and Southern California: he established the Mount Wilson Observatory, raised funds for Palomar Observatory and its 200-inch telescope, participated in the creation of the Huntington Library and Art Collections, helped design the Civic Center in downtown Pasadena, and—perhaps his single greatest achievement—

set the course for the development of Throop into the California Institute of Technology, a school he envisioned as a scientific institution of the highest rank.

In 1913, Hale convinced Arthur Amos Noyes, professor of chemistry and former president of the Massachusetts Institute of Technology, to join him in Pasadena. With the arrival in 1917 of Robert Andrews Millikan, professor of physics at the University of Chicago, Hale had assembled the founders of the new institution. The world center of scientific and engineering research and education he had imagined soon took shape under a new name, the California Institute of Technology, administered by Millikan and enriched with the scientific talents of Noyes and his faculty colleagues.

And amazing things indeed have happened at Caltech over the years. Theodore von Kármán developed the principles that made jet flight possible, Charles Richter published his logarithmic scale for measuring the magnitude of earthquakes, and astronomer Maarten Schmidt discovered the nature of quasars. Here Linus Pauling determined the nature of the chemical bond, Max Delbrück conducted the studies of bacterial viruses that led to a new branch of biology called molecular genetics, Murray Gell-Mann theorized that all particles are made up of quarks and anti-quarks, and Roger Sperry developed new insights into the implications of right-brain and left-brain functions. Nor were the faculty alone in changing the world; Caltech alumni have had great impact as well. Charles Townes developed the laser; Chester Carlson invented Xerography; David Ho pioneered the use of drug “cocktails” in AIDS treatment; and Gordon Moore helped found the semiconductor industry. Some alumni, like Simon Ramo and Ben Rosen, have made their mark in the business world, while others have become astronauts, university presidents, government leaders, writers, film directors—even performance artists. Thanks to the accomplishments of people like these, Caltech’s influence has been both broad and deep.

Caltech today has a 124-acre campus and operates seven off-campus

astronomical, seismological, and marine biological facilities, and administers NASA's Jet Propulsion Laboratory as well. At present, the Institute has an enrollment of some 2,000 students, more than half of whom are in graduate studies; about 290 professorial faculty members, including five Nobel laureates and three Crafoord laureates; and about 65 research faculty members. Today Caltech will award 171 students the B.S. degree; 108 students the M.S. degree; and 206 doctoral candidates the Ph.D. degree, for a total of 485 graduates—quite a leap from the one man and one woman who constituted the first collegiate graduating class of Throop Polytechnic Institute.

THESE TRIBAL RITES have a very long history. They go back to the ceremony of initiation for new university teachers in mediaeval Europe. It was then customary for students, after an appropriate apprenticeship to learning and the presentation of a thesis as their masterpiece, to be admitted to the Guild of Masters of Arts and granted the license to teach. In the ancient University of Bologna this right was granted by authority of the pope and in the name of the Holy Trinity. We do not this day claim such high authority.

As in any other guild, whether craft or merchant, the master's status was crucial. In theory at least, it separated the men from the boys, the competent from the incompetent. On the way to his master's degree, a student might collect a bachelor's degree in recognition of the fact that he was half-trained, or partially equipped. The doctor's degree was somewhat different. Originally indistinguishable from the master's, the doctor's gradually emerged by a process of escalation into a super magisterial role—first of all in the higher faculties of theology, law, and medicine. It will come as no surprise that the lawyers had a particular and early yen for this special distinction.

These graduations and distinctions are reflected in the quaint and colorful niceties of academic dress.

Of particular interest is the cap or mortarboard. In the form of the biretta it was the peculiar sign of the master. Its use has now spread far beyond

that highly select group to school girls and choir boys and even to the nursery school. *Sic transit* . . .

The gown, of course, is the basic livery of the scholar, with its clear marks of rank and status—the pointed sleeves of the bachelor, the oblong sleeves of the master, the full sleeves and velvet trimmings of the doctor. The doctors, too, may depart from basic black and break out into many colors—Harvard crimson or Yale blue or the scarlet splash of Oxford.

Color is the very essence of the hood: color in the main body to identify the university; color perhaps in the binding to proclaim the subject of the degree—orange for engineering, gold for science, the baser copper for economics, white for arts and letters, green for medicine, purple for law, scarlet for theology, and so on. Size is a further variable, as the hoods tend to lengthen from the three feet of the bachelor to the four of the doctor. So the birds are known by their plumage.

With this color and symbolism, which is mediaeval though mutated, we stage our brief moment of pageantry, paying homage to that ancient community of scholars in whose shadow we stand, and acknowledging our debt to the university as one of the great institutional constructs of the Middle Ages. While looking back, however, we also celebrate the achievements of this present generation of students and look forward to the future of these our younger colleagues, whom we now welcome to our midst.

*David C. Elliot*  
*Professor of History, Emeritus*



TODAY DR. JEAN-LOU CHAMEAU will officially assume the mantle as the eighth president of the California Institute of Technology. “Beginning his presidency as part of the 2007 graduation ceremony sets a clear tone of commitment to our faculty, students, and staff,” said Chairman of the Board Kent Kresa. “He joins a list of very distinctive scientists and engineers who have positioned this institution as one of the very best in the world.”

Before assuming his duties as Caltech’s president on September 1, 2006, Chameau was provost at the Georgia Institute of Technology, where he had programmatic, strategic, and financial responsibilities for the academic and research programs of the university, including the Georgia Tech Research Institute. His office also oversaw the university’s continuing and executive education, economic development, and commercialization programs.

While provost at Georgia Tech, Chameau provided vision and administrative leadership for enhancing the university’s academic and research programs and promoting its efforts in executive education, economic development, and technology commercialization. He developed a model for interdisciplinary education and research, innovation, and entrepreneurship, and promoted these activities as catalysts for education and economic development.

Chameau has always placed a strong emphasis on improving the educational experience of students, increasing diversity, and fostering research, entrepreneurial, and international opportunities for faculty and students.

He also championed programs that made Georgia Tech a leader in educating minority engineering students and in recruiting and retaining female faculty. Bren Professor of Biology Henry Lester said that “Jean-Lou Chameau comes to Caltech with a reputation for deep interest in and effective attention to faculty and student issues. His vision and energy have led to productive ties with international institutions and with industry.”

A Georgia Research Alliance Eminent Scholar and Hightower Professor at Georgia Tech, Chameau was formerly dean of the Georgia Tech College of Engineering. He led educational and research programs in nine engineering disciplines—all of which have received national recognition and collectively confer the nation’s largest number of engineering degrees on undergraduate and graduate students.

His technical interests include sustainable technology, environmental geotechnology, and earthquake engineering. He has received the NSF’S Presidential Young Investigator Award, the ASCE’s A. Casagrande Award, and the Society of Women Engineers’ Rodney Chipp Memorial Award. Chameau serves on the boards of MTS Systems Corporation, Prime Engineering, and l’École Polytechnique in Paris.

After completing his undergraduate education in France and his doctorate in civil engineering at Stanford, Chameau joined the faculty at Purdue University, rising to full professor and head of the geotechnical engineering program. He became the director of Georgia Tech’s School of Civil and Environmental Engineering in 1991, and from 1994 to 1995, he was president of Golder Associates, an international geotechnical consulting company. Chameau is married to Dr. Carol Carmichael, formerly the director of the Institute for Sustainable Technology and Development at Georgia Tech, where she had been for almost 20 years.

“Jean-Lou Chameau impressed us with his intelligence, his vision, his

personality, and his extensive administrative and fund-raising experience and success,” said David Stevenson, Van Osdol Professor of Planetary Science and head of the faculty search committee. “We believe that he is well suited to the challenges and opportunities of the Caltech presidency in a time of change in the global environment of science, technology, and education. We expect him to be an engaging and energizing presence in our community of faculty, students, and staff, including the Jet Propulsion Laboratory.”

DR. JARED DIAMOND is an evolutionary biologist, physiologist, biogeographer, and Pulitzer Prize–winning author of *Guns, Germs, and Steel* and most recently *Collapse: How Societies Choose to Fail or Succeed*. Diamond tackles the big questions: Why do some societies thrive and prosper while others shrivel and die? How can humanity maximize the opportunity for human happiness while saving the planet from ecological ruin? Are there lessons we can learn from other great civilizations?

“I’ve set myself the modest task of trying to explain the broad pattern of human history, on all the continents, for the last 13,000 years,” says Diamond. “Why did history take such different evolutionary courses for peoples of different continents? This problem has fascinated me for a long time, but it’s now ripe for a new synthesis because of recent advances in many fields seemingly remote from history, including molecular biology, plant and animal genetics, and biogeography, archaeology, and linguistics.”

Renowned as the author of a number of popular science works that combine anthropology, biology, linguistics, genetics, and history, Diamond is best known for his bestselling book *Guns, Germs, and Steel* (1997), which asserts that the main international issues of our time are legacies of processes that began during the early-modern period, in which civilizations that had experienced an extensive amount of “human development” began to intrude upon simpler civilizations around the world.

In his most recent book, *Collapse: How Societies Choose to Fail or Succeed* (2005), Diamond examines what caused some of the great civilizations of the past to collapse into ruin, and he considers what contemporary society can learn from their fates.

He speaks a dozen languages, and his books rely on fields as diverse as molecular biology and archaeology, as well as knowledge about typewriter design and feudal Japan. His field experience includes 22 expeditions to New Guinea and neighboring islands to study ecology and the evolution of birds; rediscovery of New Guinea's long-lost goldenfronted bowerbird; and other field projects in North America, South America, Africa, Asia, and Australia. As a conservationist he devised a comprehensive plan, almost all of which was implemented, for Indonesian New Guinea's national park system, and carried out numerous field projects for the Indonesian government.

Currently a professor of geography at UCLA, Diamond earned his bachelor's degree at Harvard University in 1958 and his Ph.D. in physiology and membrane biophysics at the University of Cambridge in 1961. He has received numerous awards, among them a MacArthur Foundation "genius" Fellowship, the Conservation Medals of the Zoological Society of San Diego, Japan's International Cosmos Award, the prestigious Tyler Prize for Environmental Achievement, and a National Medal of Science for his research and discoveries in evolutionary biology. He is also a recipient of research prizes of the American Physiological Society and National Geographic Society, and many teaching awards and endowed public lectureships. He is a member of the American Philosophical Society, the American Academy of Arts and Sciences, and the National Academy of Sciences, and is also the U.S. regional director of the World Wildlife Fund.

## ACADEMIC PROCESSION

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### *Chief Marshal*

Cindy Weinstein, Ph.D.

### *Marshals*

Michael E. Brown, Ph.D.  
Judith L. Campbell, Ph.D.  
Barbara C. Green, Ph.D.  
John F. Hall, Ph.D.  
Melany L. Hunt, Ph.D.  
Henry A. Lester, Ph.D.  
David B. Wales, Ph.D.

### *Faculty Officers*

Henry A. Lester, Ph.D.  
Judith L. Campbell, Ph.D.  
David B. Wales, Ph.D.

## MARCHING ORDER

Candidates for the Degree of Bachelor of Science  
Candidates for the Degree of Master of Science  
Candidates for the Degree of Doctor of Philosophy  
Delegates from Academic Institutions and Learned Societies  
Faculty Officers  
The Faculty  
The Chairs of the Divisions  
The Provost  
The Vice Presidents  
The Presidents Emeriti  
The Trustees  
The Speakers  
The President  
The Chairman of the Board of Trustees

## PROGRAM

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Organ Prelude	Leslie J. Deutsch, Ph.D.
PROCESSIONAL	The Caltech Convocations Brass and Percussion Ensemble <i>William W. Bing, M.M., Conductor</i>
PRESIDING	Kent Kresa <i>Chairman of the Board of Trustees</i>
INVESTITURE OF THE PRESIDENT	Chairman Kresa  David J. Stevenson, Ph.D. <i>George Van Osdol Professor of Planetary Science</i>
WELCOME TO THE NEW PRESIDENT	Richard Hayden Jones <i>Undergraduate Student</i>
INAUGURAL REMARKS	Jean-Lou A. Chameau, Ph.D. <i>President</i>
COMMENCEMENT SPEAKER “The Next 50 Years”	Jared Diamond, Ph.D. <i>Professor of Geography University of California, Los Angeles</i>
CHORAL SELECTION “There’s Just One” music by George Frideric Handel, lyrics by K. Giapis and D. Caldwell ( <i>Lyrics are on page 58.</i> )	The Caltech Glee Clubs <i>L. Desiree LaVertu, M.M., Conductor</i>
CONFERRING OF DEGREES	President Chameau
PRESENTATION OF CANDIDATES FOR DEGREES	
For the Degree of Bachelor of Science	John F. Hall, Ph.D. <i>Dean of Students Acting Vice President for Student Affairs</i>
For the Degree of Master of Science	Michael R. Hoffmann, Ph.D. <i>Dean of Graduate Studies</i>

For the Degree of Doctor of Philosophy	Dean Hoffmann
Biology	Christof Koch, Ph.D. <i>Executive Officer for Neurobiology</i>
Chemistry and Chemical Engineering	David A. Tirrell, Ph.D. <i>Division Chair</i>
Engineering and Applied Science	David B. Rutledge, Ph.D. <i>Division Chair</i>
Geological and Planetary Sciences	Kenneth A. Farley, Ph.D. <i>Division Chair</i>
The Humanities and Social Sciences	David M. Grether, Ph.D. <i>Interim Division Chair</i>
Physics, Mathematics and Astronomy	Thomas A. Tombrello, Ph.D. <i>Division Chair</i>

ANNOUNCEMENT OF AWARDS  
AND CONCLUDING REMARKS

President Chameau

ALMA MATER  
“Hail CIT”  
by Manton Barnes, B.S. '21 E.E.  
(*The audience may join in;  
lyrics are on page 60.*)

The Caltech Glee Clubs,  
The Caltech Convocations Brass  
and Percussion Ensemble,  
  
and Organ

RECESSIONAL

The Caltech Convocations Brass  
and Percussion Ensemble

Organ Postlude

Dr. Deutsch

*Video footage of commencement may be viewed on the Caltech website at  
<http://www.caltech.edu/commencement>. Broadcast is scheduled to begin after 3:00 p.m.*



## CANDIDATES FOR DEGREES

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### *Bachelor of Science*

James Adler\* *Memphis, Tennessee* Physics and English  
Grigori Avramidi\* *Socorro, New Mexico* Mathematics  
Andrew Vincent Baldwin *Downey, California* Mechanical Engineering  
Shai Barak\* *East Brunswick, New Jersey* Electrical Engineering  
Chandra Moncoeur Barnett *Galloway Township, New Jersey* Computer Science  
Daniel Paul Barroll *Albany, California* Mathematics  
James William Berglund\* *Beavercreek, Ohio* Mathematics  
Daniel Robert Birt\* *Fort Worth, Texas* Physics  
Sanjeeb T. Bose\* *Kent, Ohio* Mechanical Engineering  
Patrick L. Boyle *Weatherford, Texas* Electrical Engineering  
Benny Chan\* *Brooklyn, New York* Physics  
Shelley Hsiao-I Chang† *Richardson, Texas* Chemistry  
Aleksandr Chechkin *Brooklyn, New York* Physics  
Jing Chen\* *Las Vegas, Nevada* Computer Science  
Yijia Chen\* *Cypress, California* Biology  
Gary Chia Li Cheng\* *Honolulu, Hawaii* Physics  
Evelyn Joyce Cheung\* *Pasadena, California* Biology  
Catherine S. Chou *New City, New York* Electrical Engineering  
Colin Chrystal *Mission Viejo, California* Applied Physics  
Kevin Cossel *Idaho Falls, Idaho* Chemistry and Physics  
Adam George Craig *Los Angeles, California* Computer Science  
William Park Cram *Columbia, South Carolina* Economics  
Meghan Ruth Crowley\* *Foster City, California* Geochemistry  
Franziska Dammeier\* *Tubingen, Germany* Geophysics  
Neha Monica Das\* *Chandler, Arizona* Biology and Philosophy  
Rahul Deb\* *West Linn, Oregon* Electrical Engineering  
Doyle Edward Dickel\* *Central, South Carolina* Physics  
Nhattrieu Chan Duong *Torrance, California* Mechanical Engineering  
Mark Eichenlaub† *Kingsville, Maryland* Physics  
Sukhada Sharad Fadnavis\* *Pune, India* Mathematics  
Hamilton E. Falk\* *Drexel Hill, Pennsylvania* Geology  
Matthew David Fisher\* *Charlotte, North Carolina* Computer Science

\* *Students whose names are followed by an asterisk are being graduated with honor in accordance with a vote of the faculty.*

† *Students whose names are followed by a dagger are close to completion and will receive diplomas when all graduation requirements are met.*

*Bachelor of Science continued*

- Mark Freeman-Aloiau<sup>†</sup> *Huntington Beach, California* Engineering and Applied Science  
Daniel Fu\* *Ellicott City, Maryland* Applied and Computational Mathematics  
Issac Garcia-Munoz *Lake Forest, California* Electrical Engineering  
Jonathan William Gardner *Yreka, California* Engineering and Applied Science (Materials Science) and Social Science  
Jaime Bango Garnica *Port Charlotte, Florida* Electrical Engineering  
Elizabeth Ann Gilliam<sup>†</sup> *La Cañada, California* Biology  
Arcady Goldmints-Orlov *New York City, New York* Computer Science  
Benjamin Golub\* *Columbus, New Jersey* Mathematics  
Yuan Gong\* *Chicago, Illinois* Chemical Engineering (Biomolecular) and Applied and Computational Mathematics  
Jeffrey John Graham\* *Manitou Spring, Colorado* Physics and History  
Steven Robert Gray\* *Peoria, Arizona* Mechanical Engineering and Control and Dynamical Systems (Minor)  
Shannon Elizabeth Greene\* *Austin, Texas* Geobiology  
Alexandria Yvette Grubbs *Reno, Nevada* Mechanical Engineering  
Lily Gruenke *Lafayette, California* Engineering and Applied Science  
Clark Guo *Saint Louis, Missouri* Economics and Mathematics  
Erin Kristine Hartman *Austin, Texas* Economics and Political Science  
Elena Hartoonian<sup>†</sup> *Teheran, Iran* Applied Physics  
Matthew Bennett Hartshorn *Lafayette, California* Physics  
Ekaterina Harvard\* *Great Neck, New York* Electrical Engineering  
Kenneth Heafield\* *Bloomfield Hills, Michigan* Mathematics and Computer Science  
Zachary Allen Henson *San Antonio, Texas* Mathematics  
Kenneth L. Ho\* *Union City, California* Applied and Computational Mathematics  
Chen Pin Ryan Huang *Arcadia, California* Electrical Engineering  
Wei Huang *West Hempstead, New York* Mechanical Engineering  
Alexander G. Huth *Ojai, California* Engineering and Applied Science (Computational and Neural Systems)  
Nicholas Richard Hutzler\* *La Crosse, Wisconsin* Mathematics  
Michael Ikeda *Santa Paula, California* Mechanical Engineering  
Michael Brian Jankauski *Poway, California* Electrical Engineering  
John Michael Jester *Coronado, California* Electrical Engineering  
Jimmy Zhe Jia\* *San Jose, California* Engineering and Applied Science (Computational and Neural Systems)  
Scott David Jordan *Orange, California* Mechanical Engineering  
Thomas Edward Jurczak *Davidsonville, Maryland* History  
Dmitrii Kamalov *Pasadena, California* Physics  
Anthony David Kelman\* *Redmond, Washington* Mechanical Engineering

## *Bachelor of Science continued*

- Si Hyun Kim *Irvine, California* Biology  
Yuki Kimura *Closter, New Jersey* Chemical Engineering (Materials)  
Jacob Leonard King\* *San Diego, California* Applied and Computational Mathematics and Economics  
Daniel Thomas Knoepfle\* *Arlington Heights, Illinois* Economics  
Huaising Cindy Ko† *San Diego, California* Mechanical Engineering  
Michael Justin Kocurek\* *Hilton Head Island, South Carolina* Computer Science  
Michael Kolodrubetz\* *San Antonio, Texas* Physics  
Jeffrey Steven Kranski *Castle Rock, Colorado* Mechanical Engineering  
Yuliya Kuznetsova *Kirkland, Washington* Physics  
Sy Tanapun Labthavikul† *New York City, New York* Engineering and Applied Science  
(Environmental Science and Engineering)  
Christine Ruey Shan Lee *Taichung, Taiwan* Mathematics  
Jack Jih-chin Lee\* *Columbia, Ohio* Biology  
Warner Carter Leedy III\* *Columbus, Ohio* Computer Science  
Wei Li\* *Fo Shan, People's Republic of China* Electrical Engineering  
Diana Lin *Huntington Beach, California* Chemical Engineering (Biomolecular)  
Kelly Ying Lin\* *Alhambra, California* Biology and English (Minor)  
Jonathan C. Liong *San Clemente, California* Biology  
Daniel S-D Liu *Little Rock, Arkansas* Economics  
David S. Liu\* *Cerritos, California* Chemical Engineering (Materials)  
Victor Liu\* *Cupertino, California* Electrical Engineering  
Leyan Lo\* *Basking Ridge, New Jersey* Physics  
Po-Ru Loh\* *Madison, Wisconsin* Mathematics  
Ghyrn William Loveness\* *Vashon, Washington* Mechanical Engineering  
Sixin Samantha Lu\* *Boston, Massachusetts* Biology and Social Science  
Zhong Yi Lu *Shangrao, People's Republic of China* Chemistry and History  
George S. Luo *Harbin, People's Republic of China* Biology  
Wen Mao\* *Tianjin, People's Republic of China* Physics  
Joseph M. McDonnell\* *Peoria, Illinois* Computer Science  
Daniel Michael McLaury *Norman, Oklahoma* English  
Gian Solworth Merlino *New York City, New York* Computer Science  
Jonah Michaud *Los Angeles, California* Physics  
Paul J. Miller\* *Rockwall, Texas* Electrical and Computer Engineering and Control and Dynamical Systems (Minor)  
Evan Adrian Robjohn Murphy† *Lutherville, Maryland* Computer Science  
Lydia Won Ying Ng\* *Libertyville, Illinois* Chemistry  
Huong Ngoc-Thien Nguyen *San Jose, California* Biology  
Li Ni\* *San Gabriel, California* Biology

## *Bachelor of Science continued*

Rodolfo Nunez *San Fernando, California* Applied Physics  
Daniel Crozier Oliver *Sacramento, California* Mechanical Engineering and Business  
Economics and Management  
Yingkai Ouyang\* *Singapore* Physics  
Alex Padilla *Huntington Beach, California* Chemical Engineering (Environmental)  
Mykyta Andriyovych Panasenko *Kiev, Ukraine* Physics  
Benjamin Vincent Park\* *Ulsan, South Korea* Biology  
Siddharth Patel\* *Santa Clara, California* Computer Science  
Jeffrey Alan Phillips *San Carlos, California* Business Economics and Management  
Arturo Alejandro Pizano *Belle Mead, New Jersey* Chemistry  
Daniel Yuenheen Poon<sup>†</sup> *Ann Arbor, Michigan* Biology  
Thomas Quetchenbach\* *Pasadena, California* Electrical Engineering  
Jon Valentin Ramirez *El Paso, Texas* Electrical Engineering  
Kurtis Ryan Ras *Pasadena, California* Mechanical Engineering  
Iva Petrova Rashkova\* *Ruse, Bulgaria* Mathematics and Economics  
Royal Anne Reinecke\* *Alpharetta, Georgia* Physics  
Catherine Nicole Roop\* *Albuquerque, New Mexico* Biology and English  
Rudra Amadeus Roy *Pasadena, California* Mechanical Engineering  
Leonid Rozenberg *Oceanside, New York* Engineering and Applied Science  
Emily Russell\* *Yorktown Heights, New York* Physics  
Yernur Rysmagambetov *Zhezkazgan, Kazakhstan* Business Economics and Management  
John Paul Sadowski\* *Glen Head, New York* Chemistry and History and Philosophy of  
Science (Minor)  
Carlos Garcia Saldana *South El Monte, California* Chemical Engineering (Materials)  
David Sanford\* *Denver, Colorado* Physics  
Emma Rose Schmidgall\* *Golden Valley, Minnesota* Physics and History  
Gregory Sickler Schmidt *Petaluma, California* Chemical Engineering (Materials)  
Jonathan Senn *Coral Springs, Florida* Mathematics  
Eliot Gehrt Setzer\* *Salt Lake City, Utah* Computer Science  
Benjamin John Sexson\* *Athens, Greece* Mechanical Engineering  
Chelsea Electra Sharon *Grass Valley, California* Astrophysics  
Jeffrey E. Shaw\* *San Diego, California* Computer Science  
Elizabeth Shay *Wilmette, Illinois* Biology  
Janet Yue Hung Sheung *Foster City, California* Physics  
Amanda Leanne Silberstein\* *Fair Oaks, California* Chemistry  
David Joseph Simenc *Chico, California* Astrophysics  
Preetha Keya Sinha\* *Worthington, Ohio* Biology and Chemistry and English (Minor)  
Ryan Wesley Sinnet *Carmel, California* Electrical Engineering  
William David Sladek\* *San Marcos, Texas* Mathematics

## *Bachelor of Science continued*

Alexander Soibelman *Manhattan, Kansas* Mathematics  
Micah Daniel Solomon *Minneapolis, Minnesota* Physics  
Gregory Conrad Stachelek\* *Erie, Pennsylvania* Biology and Chemistry  
Harrison Samuel Stein\* *Highland Park, Illinois* Applied and Computational Mathematics  
Elisabeth Streit\* *Jupiter, Florida* Geology  
Rebecca Lydia Streit\* *Jupiter, Florida* Geology  
Andreea Daniela Stuparu\* *Bals, Romania* Chemistry  
Jean Elizabeth Sun *Beaverton, Oregon* Biology and English  
Ruoshan Sun *Rosemead, California* Biology  
Klementyna Szwaykowska\* *Tucson, Arizona* Physics  
Cameron P T Taketa\* *Honolulu, Hawaii* Mathematics  
Vera Louise te Velde\* *Stillwater, Oklahoma* Economics and Mathematics  
Simona Tescu\* *Iasi, Romania* Biology  
Dalina Lakshmi Thrift-Viveros *Long Beach, California* Chemistry  
Paul Vincent Tomassi\* *Cathedral City, California* Mechanical Engineering  
Truong-Dzuy Edward Truong-Cao\* *Houston, Texas* Mechanical Engineering  
Joseph Steven Vega† *Tucson, Arizona* Engineering and Applied Science  
Raquel Dagmar Vélez *Kendall Park, New Jersey* Mechanical Engineering  
Randall D. Wald *Ft. Lauderdale, Florida* Biology  
Helena X. Wang\* *San Francisco, California* Engineering and Applied Science  
(Computational and Neural Systems)  
Zhan Jane Wang\* *San Jose, California* Chemistry  
Kristen Michelle Ward *Tucson, Arizona* Engineering and Applied Science (Structural  
Mechanics)  
David Triest Waylonis *Redwood City, California* Computer Science and Business  
Economics and Management  
Scott Harris Batchelder Wilbur *Andover, Massachusetts* Physics  
Jonathan B Winn *Greenville, North Carolina* Applied and Computational Mathematics  
Ryan Christopher Witt *Simi Valley, California* Computer Science  
Matthew M. Wroten *Baton Rouge, Louisiana* Mathematics  
Huan Yang\* *Changsha, People's Republic of China* Physics  
Xin Thomas Ye\* *Plano, Texas* Biology and Business Economics and Management and  
English (Minor)  
Daniel Eugene Yi\* *Redondo Beach, California* Applied and Computational Mathematics  
and Business Economics and Management  
Graham C. Yoakum *Cary, North Carolina* Computer Science  
Ryan N. Yoakum *Cary, North Carolina* Computer Science  
James Daegun Yoon *Overland Park, Kansas* Chemical Engineering (Environmental)  
William Charles Young *Estero, Florida* Mathematics

*Bachelor of Science continued*

Christopher Yu\* *San Jose, California* Engineering and Applied Science (Aeronautics)

Wing Ning Yung\* *Sierra Madre, California* Chemistry

Rumen Ivanov Zarev\* *Sofia, Bulgaria* Mathematics

William Zdon *Miami, Florida* Engineering and Applied Science (Computational and  
Neural Systems)

Gus Qiong Zhang *Dallas, Texas* Biology

Yi-Nan Zhang *San Leandro, California* Electrical Engineering

Nan Zhou\* *Nanjing, People's Republic of China* Economics and Computer Science

Yifan Zhou\* *Beijing, People's Republic of China* Electrical Engineering and Physics

## *Master of Science*

- Fabio Altenbach (*Astrophysics*) B.S., University of California, Los Angeles 2005.
- Mohamed Alaa El-Dien Mahmoud Hussein Aly (*Electrical Engineering*) B.Sc., Cairo University 2003.
- Michael E. S. Amori (*Applied Physics*) B.A., Georgetown University 1989; M.B.A., Harvard University 1993; B.S., Columbia University 2005.
- Carl David Aschenbrenner (*Chemical Engineering*) B.S., University of California, Berkeley 2005.
- Annamarie Ellen Askren (*Aerospace Engineering*) B.S., University of Washington 2006.
- Anna Rose Beck (*Environmental Science and Engineering*) B.S., Denison University 2004.
- Philipp Andreas Boettcher (*Aeronautics*) B.S., Purdue University 2006.
- Michael Patrick Brochu (*Chemistry*) B.S., College of William and Mary 2002.
- Arwen Elizabeth Brown (*Chemical Engineering*) B.A., B.S., University of California, Irvine 2004.
- Michael William Busch (*Planetary Science*) B.S. (*Astrophysics*), B.S. (*Physics*), University of Minnesota 2005.
- Angela Maria Capece (*Aerospace Engineering*) B.S., Lehigh University 2005.
- Martina Nini Carbone (*Chemical Engineering*) B.S., University of Wisconsin, Madison 2005.
- Arthur Wing Hong Chan (*Chemical Engineering*) B.S., University of Pennsylvania 2005.
- Yan Chen (*Electrical Engineering*) B.S., Tsinghua University 2002.
- Yvonne Yu-Hsuan Chen (*Chemical Engineering*) B.S., Stanford University 2004.
- Sam Cheung (*Chemistry*) B.S., California State University, Los Angeles 1999.
- Puneet Singh Chhabra (*Chemical Engineering*) B.S. (*Mathematics*), B.S. (*Chemical Engineering*), University of Illinois at Urbana-Champaign 2005.
- Carl Wing-Jang Chin (*Electrical Engineering*) B.S., California Institute of Technology 2005.
- Angela M. Cho (*Civil Engineering*) B.S., Harvey Mudd College 2005.
- Eileen Yilin Chou (*Social Science*) B.A., University of California, Los Angeles 2005.
- Ann Marie Cody (*Astrophysics*) A.B., A.M., Harvard University 2003; M.Phil., University of Cambridge 2005.
- William Kratz Coulter (*Electrical Engineering*) B.S., California Institute of Technology 2006.
- Leopold Daniel d’Espaux (*Chemical Engineering*) B.S., Cornell University 2005.
- Mary Aileen Devlin (*Biochemistry and Molecular Biophysics*) B.S., Worcester Polytechnic Institute 2001.
- Andrew Joseph Downard (*Chemical Engineering*) B.S., M.B.A., University of Notre Dame 2004.
- Matthew Scott Eichenfield (*Physics*) B.S., University of Nevada, Las Vegas 2004.
- Travis Joseph Essl (*Aeronautics*) B.S., Texas A&M University 2006.

*Master of Science continued*

- Claire Elizabeth Farnsworth (*Environmental Science and Engineering*) B.S., Washington University 2005.
- Thibaud Gallet (*Mechanical Engineering*) B.S., École Polytechnique 2006.
- Kate Elizabeth Galloway (*Chemical Engineering*) B.S., University of California, Berkeley 2005.
- Luca Giacchino (*Electrical Engineering*) Laurea di Primo Livello, Politecnico Di Torino 2003; Laurea, 2005.
- Ha Thanh Giang (*Mechanical Engineering*) B.S., Vietnam National University 2004.
- Heather Mary Audrey Gray (*Physics*) B.S. (*Computer Science, Mathematics, and Physics*), University of Cape Town 2001; B.Sc. (*Theoretical Physics*), 2002; M.S., 2003.
- Bonnie Colleen Gurry (*Mechanical Engineering*) B.S., Columbia University 2006.
- Nicholas Gray Heavens (*Planetary Science*) B.S., The University of Chicago 2005.
- Paul Hebert (*Aerospace Engineering*) B.E., McGill University 2006.
- Albert Barrett Hicks III (*Chemical Engineering*) B.S., Auburn University 2004.
- Christopher Peter Hiszpanski (*Electrical Engineering*) B.S., California Institute of Technology 2006.
- Alexander Chi-Hung Ho (*Mechanical Engineering*) B.S.E., Arizona State University 2005.
- Ting Hong (*Applied Physics*) B.S., Nanjing University 2002; M.S., Chinese Academy of Sciences 2005.
- Asa Sies Hopkins (*Physics*) B.S., Haverford College 2001.
- Chia-Lung Hsieh (*Electrical Engineering*) B.S., National Tsing-hua University 2002; M.S., National Taiwan University 2004.
- Cheng Hu (*Computer Science*) B.A., Williams College 2003.
- Chen An Andrew Huang (*Electrical Engineering*) B.S., California Institute of Technology 2006.
- Ruo-Gu Huang (*Electrical Engineering*) B.S., National Tsing-hua University 1999; M.S., National Chiao-Tung University 2001.
- Heather Kristine Hunt (*Chemical Engineering*) B.S., Iowa State University 2004.
- Daniel E. Hurtado Sepulveda (*Mechanical Engineering*) Licenciado, Pontificia Universidad Católica de Chile 2002; Ingeniero Civil, 2003.
- Richard Kalantar Ohanian (*Electrical Engineering*) B.S., California Institute of Technology 2005.
- Mansi Manoj Kasliwal (*Astrophysics*) B.S., Cornell University 2005.
- Gabriel Katz (*Social Science*) Licenciado, Universidad de la República 2005.
- Devvrath Khatri (*Aerospace Engineering*) B.Tech., Indian Institute of Technology, Madras 2006.
- Daegyoun Kim (*Aeronautics*) B.S., Seoul National University 2003.
- Suk Won Kim (*Electrical Engineering*) B.E., Seoul National University 2005.



## *Master of Science continued*

- Young Hyun Kim (*Electrical Engineering*) B.S., Korea University 1999; M.S., 2001.  
Bong Chan Koh (*Social Science*) B.A., Seoul National University 2000; M.A., 2005.  
Christopher Kovalchick (*Aeronautics*) B.S., The Johns Hopkins University 2006; B.M.,  
Peabody Conservatory 2006.  
Jeffrey Allen LeHew (*Aeronautics*) B.S., Milwaukee School of Engineering 2006.  
Benjamin David Leitner (*Mathematics*) B.A. (*Mathematics*), B.S. (*Chemistry*), University of  
California, San Diego 2003.  
Chen Li (*Materials Science*) B.S., Peking University 2003.  
Alexander Peter Lin (*Bioengineering*) B.S., California Institute of Technology 2003.  
Chun-Hui Lin (*Electrical Engineering*) B.S. (*Civil Engineering*), B.S. (*Mechanical  
Engineering*), National Taiwan University 1999; M.S., 2002.  
Yuebin Liu (*Astrophysics*) B.S., Peking University 2005.  
Francisco Lopez Jimenez (*Aerospace Engineering*) M.E., University of Seville 2006.  
David Lopez Mateos (*Physics*) S.B. (*Computer Science*) S.B. (*Physics*), Massachusetts  
Institute of Technology 2005.  
Mary W. C. Louie (*Chemical Engineering*) B.S., University of California, Berkeley 2005.  
Zachary Louis Marshall (*Physics*) B.A., University of California, Berkeley 2005.  
Andrew Friedrich May (*Chemical Engineering*) B.S., The Pennsylvania State University  
2004.  
Heather Catherine McCaig (*Chemical Engineering*) B.S., Oregon State University 2004.  
Margaret Anne McConnell (*Social Science*) B.A., Wesleyan University 2003.  
Alexander George McKenzie (*Computer Science*) M.S., University College London  
2005.  
John Allen Meier (*Mechanical Engineering*) B.S., Stanford University 2006.  
Andrew Richard Metcalf (*Environmental Science and Engineering*) B.S., M.S., The  
Pennsylvania State University 2005.  
Ashley Moore (*Aerospace Engineering*) B.S. (*Aerospace Engineering Sciences*), B.S. (*Applied  
Mathematics*), University of Colorado, Boulder 2006.  
Patrick Gary Mullen (*Computer Science*) B.S., California Institute of Technology 2002.  
Mandheerej Singh Nandra (*Electrical Engineering*) B.A.Sc., University of Toronto 2005.  
Li Ni (*Applied Mechanics*) B.S., Beijing Polytechnic University 1998; M.S., Beijing  
University of Technology 2001.  
Juan Pedro Ochoa Ricoux (*Physics*) Ingeniero, Instituto Tecnológico y de Estudios  
Superiores de Monterrey 2003.  
Oluwatosin Helen Otitoju (*Control and Dynamical Systems*) B.S., Howard University  
2001.  
Ruxandra Georgiana Paun (*Electrical Engineering*) B.S., California Institute of  
Technology 2006.  
Concetta Pilotto (*Computer Science*) Laurea, University of Roma "La Sapienza" 2003.  
Havala Olson Taylor Pye (*Chemical Engineering*) B.S., University of Florida 2005.

*Master of Science continued*

- Celia Reina Romo (*Aerospace Engineering*) M.E., University of Seville 2006; M.S., École Centrale Paris 2006.
- Jason Tyler Rolfe (*Computation and Neural Systems*) S.B., Massachusetts Institute of Technology 2003.
- Julian Neukom Romero (*Social Science*) B.A. (*Economics*), B.A. (*Mathematics*), Northwestern University 2005.
- Farshid Roumi (*Mechanical Engineering*) B.S., Sharif University of Technology 2001; M.S., 2004.
- Rizk Georges Saade (*Electrical Engineering*) B.E., American University of Beirut 2006.
- James Fredric Sanchez (*Chemistry*) B.A., University of California, Los Angeles 1996; B.S., University of California, Irvine 2002.
- Naresh Satyan (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Madras 2005.
- Hilke Elisabeth Schlichting (*Astrophysics*) B.A., M.Sc., University of Cambridge 2004; M.A., 2007.
- Erik Wright Schomburg (*Physics*) B.Sc., The University of Michigan 2005.
- Diana Sergeievna Smirnova (*Chemical Engineering*) B.S., The Johns Hopkins University 2005.
- Sonja Spasojevic (*Geophysics*) B.S., University of Belgrade 2001; M.S., University of Houston 2003.
- Olive Remington Stohlman (*Aeronautics*) B.S. (*Physics*), B.S. (*Mechanical Engineering*), Carnegie Mellon University 2006.
- Panagiota Stratou (*Control and Dynamical Systems*) Diploma, National Technical University of Athens 2005.
- James William Swan (*Chemical Engineering*) B.S., University of Arizona 2004.
- James Allen Van Deventer (*Chemical Engineering*) B.S., Stanford University 2004.
- Christopher Ian Walker (*Electrical Engineering*) B.S., California Institute of Technology 1998.
- Hua Wang (*Electrical Engineering*) B.S., Tsinghua University 2003.
- Jinti Wang (*Chemistry*) B.S., University of Science and Technology of China 2004.
- Ying Wang (*Geochemistry*) B.S., University of Science and Technology of China 2004.
- Ching-Chih Weng (*Electrical Engineering*) B.S., National Taiwan University 2004.
- Michael Lon Winterrose (*Materials Science*) B.S., Washington State University 2004.
- Jie Wu (*Electrical Engineering*) B.E., Nanyang Technological University 2005.
- Zhizhang Xia (*Electrical Engineering*) B.S., California Institute of Technology 2006.
- Xin Xu (*Applied Mechanics*) B.S., Tongji University 2003; M.S., State University of New York at Buffalo 2005.
- Xinning Zhang (*Environmental Science and Engineering*) B.S., Cornell University 2004.
- Kevin Zhou (*Aeronautics*) B.S., University of Illinois at Urbana-Champaign 2006.
- John Lewis Ziegler (*Aerospace Engineering*) B.S. (*Aerospace Engineering*), B.S. (*Mechanical Engineering*), Rensselaer Polytechnic Institute 2006.

# *Doctor of Philosophy*

## DIVISION OF BIOLOGY

Oscar Alvizo (*Biochemistry and Molecular Biophysics*) B.S., University of California, Santa Cruz 2001.

Thesis: Computational Protein Design Force Field Optimization: A Negative Design Approach.

Meredith Howard Ashby (*Biochemistry and Molecular Biophysics*) B.S., Amherst College 1996.

Thesis: The Sea Urchin Regulome in Development.

Ulrik Ravnsborg Beierholm (*Computation and Neural Systems*) B.S., University of Copenhagen 1999; M.S., 2001.

Thesis: Bayesian Modeling of Sensory Cue Combinations.

John Andrew Bender (*Biology*) B.S., Montana State University 2001.

Thesis: Elements of Feed-forward and Feedback Control in *Drosophila* Body Saccades.

C. Titus Brown (*Biology*) B.A., Reed College 1997.

Thesis: Tackling the Regulatory Genome.

Seth Alexander Budick (*Biology*) B.A., Swarthmore College 1998.

Thesis: Resource Localization and Multimodal Flight Control in *Drosophila melanogaster*.

Michael Campos (*Computation and Neural Systems*) B.S., Northwestern University 2000.

Thesis: Eye Movements and Reward, Sequential States, and Context-Dependent Target Selection.

Scott A. Detmer (*Biology*) B.S., University of California, San Diego 1999.

Thesis: The Role of Mitofusin Proteins in Mitochondrial Fusion and Disease.

Jolene Sabrina Fernandes (*Biology*) B.Sc., Suffolk University 2000.

Thesis: Dissection of Gene Regulatory Networks Underlying Patterning and Morphogenesis in the *C. elegans* Vulva.

Nazli Ghaboosi (*Genetics*) B.A., University of California, Berkeley 1996.

Thesis: Genetic Inhibition of the Ubiquitin-Proteasome Pathway: Insights into Proteasomal Targeting.

Carl Gold (*Computation and Neural Systems*) A.B., B.S., Stanford University 1995; M.S., New York University 1999; M.S., Kings College London 2000.

Thesis: Biophysics of Extracellular Action Potentials.

Gregory Philip Henderson (*Biology*) B.S., University of California, Berkeley 2000.

Thesis: Ultrastructural Studies of Two Model Minimal Cells by Electron Cryotomography.

Christian John Hochstim (*Biology*) B.S., Yale University 1999.

Thesis: Pax6 Controls Astrocyte Positional Identity in the Spinal Cord.

*When more than one field of study is listed, the first is the major, and the second and others are minors.*

*Doctor of Philosophy continued*

- Jean Jing Huang (*Biology*) B.A., Wellesley College 2001.  
Thesis: Acyl-Homoserine Lactone Quorum Signal Degradation by Soil and Clinical *Pseudomonas sp.*
- Vivek Jayaraman (*Computation and Neural Systems*) B.Tech., Indian Institute of Technology 1994; M.S., University of Florida 1996.  
Thesis: Neural Circuit Dynamics and Ensemble Coding in the Locust and Fruit Fly Olfactory System.
- Jongmin Kim (*Biology*) B.S., Pohang University 2000.  
Thesis: *In Vitro* Synthetic Transcriptional Networks.
- Jonathan Kyle Lassila (*Biochemistry and Molecular Biophysics*) B.A., Reed College 1997; M.S., Yale University 2000.  
Thesis: Methods for Computational Enzyme Design and Application to the Chorismate-Prephenate Rearrangement.
- Pei Yun Lee (*Biology*) B.S., University of California, Los Angeles 1999.  
Thesis: Function and Regulation of the *Strongylocentrotus purpuratus gatae* Gene.
- Carole Chih-Chen Lu (*Biology*) S.B., Massachusetts Institute of Technology 1999.  
Thesis: Cranial Neural Crest Cell Migration in the Avian Embryo and the Roles of Eph-A4 and Ephrin-A5.
- Davin Malasarn (*Biology*) B.S., University of California, Davis 2000.  
Thesis: Molecular and Environmental Studies of Bacterial Arsenate Respiration.
- Jennifer Pielstick Montgomery (*Biology*) B.A., Barnard College 1999.  
Thesis: The Effects of Behavioral Stress and Endothelin Receptor Antagonists on Cancer.
- Farshad Moradi (*Computation and Neural Systems and Computer Science*) M.D., Tehran University of Medical Sciences 2000.  
Thesis: Conscious Awareness Determined by Selective Gating of Information in Early Visual Areas.
- Eric Ardon Mosser (*Biology*) B.S., The Evergreen State College 1997.  
Thesis: Visualization of Cadherin-Cadherin Association in Living Cells.
- Gavin Erick Murphy (*Biochemistry and Molecular Biophysics*) B.S., University of Dallas 1999.  
Thesis: Cryoelectron Tomography of Bacteria and their Macromolecular Machines.
- Dylan Rhichard Nieman (*Computation and Neural Systems*) A.B., Harvard College 1998; M.D., University of Southern California 2006.  
Thesis: Postdiction and the Effects of Spatial, Temporal, and Feature Compatibility on Sensory Integration.
- Kerstin Preuschoff (*Computation and Neural Systems*) Dipl. Ing., Technical University of Berlin 2000.  
Thesis: Neural Representations of Expected Reward and Risk during Gambling.

## *Doctor of Philosophy continued*

- Roger Revilla-i-Domingo (*Biochemistry and Molecular Biophysics*) M.Sc., University of Bristol 1998.  
Thesis: CIS-Regulatory Analysis of the Sea Urchin Delta Gene: Validating the Gene Regulatory Network Model for Early Micromere Lineage Specification.
- Tracy K. Teal (*Computation and Neural Systems*) B.S., University of California, Los Angeles 1997; M.S., 1999.  
Thesis: Studies of the Spatial Organization of Metabolism in *Shewanella oneidensis* and *Pseudomonas aeruginosa* Biofilms.

## DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING

- Theodor Agapie (*Chemistry*) S.B., Massachusetts Institute of Technology 2001.  
Thesis: Synthetic, Reactivity, and Mechanistic Studies Relevant to Olefin Oligomerization and Polymerization.
- Gitrada Arjara (*Chemistry*) S.B., Massachusetts Institute of Technology 2002.  
Thesis: Refolding a Beta-Barrel Membrane Protein.
- Katherine Emily Augustyn (*Chemistry*) B.A., Wesleyan University 2002.  
Thesis: Fundamental Mechanisms and Biological Applications of DNA-mediated Charge Transport.
- Ryan James Austin (*Biochemistry and Molecular Biophysics*) Sc.B., Brown University 2000.  
Thesis: Solving Molecular Recognition Problems with Evolvable Peptide Motifs.
- William Clifford Balcerski (*Chemistry*) B.S., M.S., Yale University 1999.  
Thesis: Applications of Semiconductor Photocatalysis for Both Degradation of Organics and Hydrogen Production.
- Derek William Bartlett (*Chemical Engineering and Biology*) B.S., Stanford University 2003; M.S., California Institute of Technology 2005.  
Thesis: An Engineering Approach to Cancer Therapy Using Systemically Delivered siRNA.
- Douglas C. Behenna (*Chemistry*) B.A., University of Pennsylvania 2000.  
Thesis: Progress Toward the Synthesis of (+)-Zoanthanol and the Development of an Asymmetric Tsuji Allylation Reaction.
- Jacob Myar Berlin (*Chemistry*) A.B., Harvard College 2001.  
Thesis: Design of Olefin Metathesis Catalysts: From Enantioselective Reactions to Tetrasubstituted Olefins.
- Jesse D. Bloom (*Chemistry*) B.S., The University of Chicago 2001.  
Thesis: Hidden Dimensions in Protein Evolution: Stability, Mutational Robustness, and Evolvability.
- Justin S. Bois (*Chemical Engineering*) B.Sc., University of Illinois at Urbana-Champaign 1999.  
Thesis: Analysis of Interacting Nucleic Acids in Dilute Solutions.

## *Doctor of Philosophy continued*

- Yuri Leonid Bunimovich (*Chemistry*) B.S., Cornell University 2000.  
Thesis: Silicon Nanowires as Biological Sensors and Highly Efficient Thermoelectric Materials.
- Jeffery Allen Byers (*Chemistry*) B.A., Washington University 2000.  
Thesis: Synthetic and Mechanistic Studies into the Kinetic Resolution of  $\alpha$ -olefins Using  $C_1$ - and  $C_2$ - Symmetric Zirconocene Polymerization Catalysts.
- Jang Wook Choi (*Chemical Engineering*) B.S., Seoul National University 2002.  
Thesis: Bistable [2]Rotaxane Based Molecular Electronics: Fundamentals and Applications.
- Lucía Fernández-Ballester (*Chemical Engineering*) B.S., Universidad de Alicante 2000; M.S., California Institute of Technology 2002.  
Thesis: Formation of Oriented Precursors in Flow-Induced Polymer Crystallization: Experimental Methods and Model Materials.
- Timothy William Funk (*Chemistry*) B.S., Gettysburg College 2000.  
Thesis: Chemo- and Stereoselective Olefin Metathesis in Small Molecule Synthesis.
- Niki Chiyomi Galownia (*Chemical Engineering*) B.S., Case Western Reserve University 2001; M.S., California Institute of Technology 2003.  
Thesis: Signaling in Context: Parsing the Adhesion-Dependence of Growth Factor Signaling.
- Nicole C. Goodwin (*Chemistry*) B.S., University of Delaware 2001.  
Thesis: Application of Iminium Activation Technologies To Natural Product Synthesis: Total Synthesis of the Spiculisporic Acids, Progress Towards the Total Synthesis of Cyliindrocyclophane F, and Formal Synthesis of Cyliindrocyclophane A.
- Nicholas A. Graham (*Chemical Engineering*) B.S., Washington University 2001; M.S., California Institute of Technology 2004.  
Thesis: Crosstalk Between Soluble Factors and Cell-Cell Interactions: Implications for Cell Cycle Control and Tumor Development.
- Jonathan Earl Green (*Chemistry*) B.S., University of California, Irvine 2002; M.S., California Institute of Technology 2005.  
Thesis: Ultra-dense Nano- and Molecular-electronic Circuits.
- Thomas W. Hamann (*Chemistry*) B.A., The University of Texas 1996; M.S., 2000.  
Thesis: Interfacial Electron-Transfer Reactions at Semiconductor Electrodes.
- Andrew Hejl (*Chemistry*) B.S., B.A., University of Illinois at Urbana-Champaign 2000.  
Thesis: Controlling Olefin Metathesis through Catalyst and Monomer Design.
- Daven Ker Henze (*Chemical Engineering*) B.S. (*Chemistry*), B.S. (*Chemical Engineering*), University of Washington 2001; M.S., California Institute of Technology 2004.  
Thesis: Forward and Inverse Analysis of Chemical Transport Models.
- Jiyong Heo (*Chemistry*) B.S., Seoul National University 1995; M.S., 1997.  
Thesis: Computational Studies of Orphan G Protein-Coupled Receptors.

*Doctor of Philosophy continued*

- Soon Hyeok Hong (*Chemistry*) B.S., M.S., Seoul National University 1999.  
Thesis: Improvement of Olefin Metathesis Efficiency through Understanding Catalyst Stability.
- Aditya Satish Khair (*Chemical Engineering*) M.E., Imperial College London 2001;  
C.A.S.M., University of Cambridge 2002.  
Thesis: Particle Motion in Colloidal Dispersions: Applications to Microrheology and Nonequilibrium Depletion Interactions.
- Nelly Khidekel (*Biochemistry and Molecular Biophysics*) B.A., Northwestern University 2000.  
Thesis: A Chemoenzymatic Strategy Toward Understanding *O*-GlcNAc Glycosylation in the Brain.
- Inchan Kwon (*Chemical Engineering and Chemistry*) B.S., Seoul National University; M.S., 1996; M.S., California Institute of Technology 2003.  
Thesis: Protein Engineering via Site-specific Incorporation of Nonnatural Amino Acids.
- Nathan Lamarre-Vincent (*Chemistry*) B.A., Carleton College 2000.  
Thesis: Identification and Functional Analysis of *O*-GlcNAc Glycosylation on the Transcription Factor cAMP-Response Element Binding Protein.
- Lori Wai Hang Lee (*Chemistry*) B.S., University of California, Berkeley 2000.  
Thesis: Chemical Scale Investigations of the Gating Mechanism of Ion Channels.
- Jian Liu (*Chemistry*) B.S., Fudan University 1997; M.S. 2000.  
Thesis: Microfluidic Devices for Genetic Analysis and Gene Expression Studies.
- Tao Liu (*Chemistry*) B.S., Peking University 2000.  
Thesis: Electrochemical Studies of Electron Transfer in DNA Films with Covalently Tethered Intercalators.
- Steven Wesley Millward (*Biochemistry and Molecular Biophysics*) B.A., The Johns Hopkins University 2000.  
Thesis: The Design, Synthesis, and Evolution of Macrocyclic mRNA Display Libraries Containing Unnatural Amino Acids.
- Andrew Keeler Mollner (*Chemistry*) B.S., University of California, Davis 2001.  
Thesis: Cavity Ringdown Spectroscopy Studies of Atmospheric Reactions: Peroxynitrous Acid Formation and Alkoxy Radical Isomerization.
- Nga Lee Ng (*Chemical Engineering*) B.E., Hong Kong University of Science and Technology 2002; M.S., California Institute of Technology 2004.  
Thesis: Chamber Studies of Secondary Organic Aerosol Formation.
- Yen Hoang Le Nguyen (*Chemistry*) B.S., Sweet Briar College 2001.  
Thesis: Wiring Inducible Nitric Oxide Synthase.
- Rachel K. Niemer (*Chemistry*) A.B., Bowdoin College 1999.  
Thesis: Computational Studies of the Structure and Function of Two Lipid-Activated G Protein-Coupled Receptors.

## *Doctor of Philosophy continued*

- Neal Robert Scruggs (*Chemical Engineering*) B.S., University of Kentucky 2001; M.S., California Institute of Technology 2003.  
Thesis: Coupling Polymer Thermodynamics and Viscoelasticity to Liquid Crystalline Order: Self-Assembly and Relaxation Dynamics of Block Copolymers in a Nematic Solvent.
- Soojin Son (*Chemical Engineering and Biology*) S.B., Massachusetts Institute of Technology 2000; M.S., California Institute of Technology 2002.  
Thesis: Biosynthetic Approaches to Protein Engineering Using Fluorinated Amino Acids.
- Julius Tsu-li Su (*Chemistry*) B.S. (*Biology*), B.S. (*Physics*), California Institute of Technology 1998.  
Thesis: An Electron Force Field for Simulating Large Scale Excited Electron Dynamics.
- Sarah Erin Tully (*Chemistry*) B.A., Barnard College 2000.  
Thesis: Synthesis and Biological Activity of Chondroitin Sulfate Biopolymers.
- Christine Terumi Ueda (*Chemistry*) B.A., Wesleyan University 2000.  
Thesis: Targeting Human Telomerase RNA via Biochemical and *in vitro* Selection Methods.
- Rafael Verduzco (*Chemical Engineering*) B.S., Rice University 2001; M.S., California Institute of Technology 2003.  
Thesis: Texture Transitions, Electro-Optics, and Dynamics of Polymer Liquid Crystal Gels with Novel Network Architectures.
- Ryan K. Zeidan (*Chemistry*) S.B. (*Chemical Engineering*), S.B. (*Chemistry*), Massachusetts Institute of Technology 2002.  
Thesis: Design of New Multifunctional Materials.
- Kechun Zhang (*Chemistry*) B.S., University of Science and Technology of China 2001.  
Thesis: Engineering Protein-based Materials through Coiled-Coil Motifs.

## DIVISION OF ENGINEERING AND APPLIED SCIENCE

- Ehsan Afshari (*Electrical Engineering*) B.Sc., Sharif University of Technology 2001; M.S., California Institute of Technology 2003.  
Thesis: Optotronics: Optically Inspired Electronics.
- Cédric Robert Anen (*Electrical Engineering*) Lic. Mathématiques, Université de Marne la Vallée 2000; Maîtrise mathémat, Université Paris VI 2001; Diplôme d'Ingenieur, École Supérieure d'Ingenieurs en Electrotechnique et Electronique 2002; M.S., California Institute of Technology 2003.  
Thesis: Neural Correlates of Economic and Moral Decision-Making.
- Andrea Martin Armani (*Applied Physics and Biology*) A.B., The University of Chicago 2001; M.S., California Institute of Technology 2003.  
Thesis: Chemical and Biological Sensing with Ultra-high-Q Microresonators.



*Doctor of Philosophy continued*

- John King-Tai Au (*Applied Physics*) B.Sc., Queen's University 1999; M.S., California Institute of Technology 2000.  
Thesis: An *Ab Initio* Approach to the Inverse Problem-Based Design of Photonic Bandgap Devices.
- Peter Babilo (*Materials Science*) B.S., University of California, Irvine 2001; M.S. California Institute of Technology 2003.  
Thesis: Processing and Characterization of Proton Conducting Yttrium Doped Barium Zirconate for Solid Oxide Fuel Cell Applications.
- Frederick Kiguli Balagadde (*Applied Physics*) B.A., Manchester College 2001; M.S., California Institute of Technology 2004.  
Thesis: Microfluidic Technologies for Continuous Culture and Genetic Circuit Characterization.
- Xiaoyan Robert Bao (*Applied Physics*) B.S., California Institute of Technology 2000.  
Thesis: Lost in a Crowd: Observations of Single DNA Knots and Single Mammalian Cells.
- Paul Edward Barclay (*Applied Physics*) B.A.Sc., University of British Columbia 2001; M.S., California Institute of Technology 2003.  
Thesis: Fiber Coupled Nanophotonic Devices for Nonlinear Optics and Cavity QED.
- Christophe Jean-Michel Basset (*Electrical Engineering*) Diplôme d'Ingénieur, École Supérieure d'Ingenieurs en Electrotechnique et Electronique 1998; M.S., California Institute of Technology 1998.  
Thesis: CMOS Imaging Technology with Embedded Early Image Processing.
- Nawaf Mohammed Bou-Rabee (*Applied and Computational Mathematics*) B.S., Rice University 2001.  
Thesis: Hamilton-Pontryagin Integrators on Lie Groups.
- Samuel Case Bradford V (*Civil Engineering and Geophysics*) B.S., University of California, Berkeley 1999; M.S., California Institute of Technology 2000.  
Thesis: Time-Frequency Analysis of Systems with Changing Dynamic Properties.
- Guillaume Alain Brès (*Mechanical Engineering*) Diplôme d'Ingénieur, École Centrale de Lyon 2001; M.S., The Pennsylvania State University 2002; M.S., California Institute of Technology 2005.  
Thesis: Numerical Simulations of Three-Dimensional Instabilities in Cavity Flows.
- Michal Amaris Brown (*Materials Science*) B.S., Florida A&M University 2001; M.S., California Institute of Technology 2003.  
Thesis: Measuring Stress in Thin-Film Substrate Systems Featuring Spatial Nonuniformities of Film Thickness and/or Misfit Strain.
- Lance Lin-Lan Cai (*Bioengineering*) B.S., University of California, Berkeley 2001.  
Thesis: Robotics Training Algorithms for Optimizing Motor Learning in Spinal Cord Injured Subjects.

*Doctor of Philosophy continued*

- Kate Marie Campbell (*Environmental Science and Engineering*) B.S., Georgetown University 2001; M.S., California Institute of Technology 2003.  
Thesis: Biogeochemical Mechanisms of Arsenic Mobilization in Haiwee Reservoir Sediments.
- Lijun Chen (*Control and Dynamical Systems*) M.S., Institute of Theoretical Physics 1998.  
Thesis: Wireless Network Design and Control.
- John Myun Choi (*Electrical Engineering*) B.S., State University of New York at Buffalo 1999; M.S., California Institute of Technology 2001.  
Thesis: Design, Fabrication, and Characterization of Semiconductor Transverse Bragg Resonance Lasers.
- Timothy Hahn Deut Chung (*Mechanical Engineering*) B.S., Cornell University 2001; M.S., California Institute of Technology 2002.  
Thesis: Intelligent Information-Gathering: Using Control for Sensing and Decision-Making.
- Lisa Cowan (*Materials Science and Chemistry*) B.S., California Institute of Technology 2001; M.S., California Institute of Technology 2005.  
Thesis: Superprotonic Solid Acid Phase Transitions and Stability.
- Samantha Hayes Daly (*Mechanical Engineering*) B.E., Dartmouth College 2001; M.S., California Institute of Technology 2002.  
Thesis: Deformation and Fracture of Thin Sheets of Nitinol.
- Kaushik Dayal (*Mechanical Engineering and Materials Science*) B.Tech., Indian Institute of Technology, Madras 2000; M.S., California Institute of Technology 2001.  
Thesis: Nonlocal Microstructural Mechanics of Active Materials.
- Joanna Lynn Dodd (*Materials Science*) B.S., California Institute of Technology 1999; M.S., University of California, Los Angeles 2002; M.S., California Institute of Technology 2004.  
Thesis: Phase Composition and Dynamical Studies of Lithium Iron Phosphate.
- Patrick Werner Dondl (*Applied and Computational Mathematics*) M.S., Technische Universität München 2002.  
Thesis: Structure and Evolution of Martensitic Phase Boundaries.
- Mostafa Said El-Khamy (*Electrical Engineering*) B.S., Alexandria University 1999; M.S., California Institute of Technology 2003.  
Thesis: New Approaches to the Analysis and Design of Reed-Solomon Related Codes.
- Mohamed Y. El-Naggar (*Mechanical Engineering and Applied Physics*) B.S., Lehigh University 2001; M.S., California Institute of Technology 2002.  
Thesis: Textured Ferroelectric Thin Films: Synthesis, Characterization, and Influence of Compositional Grading on the Dielectric Behavior.
- Amir Farajidana (*Electrical Engineering*) B.Sc., Sharif University of Technology 2001; M.S., California Institute of Technology 2002.  
Thesis: Performance Limits and Design Issues in Wireless Networks.

*Doctor of Philosophy continued*

- Philip Xiao-Li Feng (*Electrical Engineering*) B.S., Tsinghua University 1996; M.S., 2001; M.S., California Institute of Technology 2002.  
Thesis: Ultra-high Frequency Nanoelectromechanical Systems with Low-Noise Ultra-high Technologies for Single-Molecule Mass Sensing.
- Jeffrey Paul Fingler (*Applied Physics*) B.S., University of Manitoba 2001; M.S., California Institute of Technology 2003.  
Thesis: Motion Contrast Using Optical Coherence Tomography.
- Vikram Gavini (*Mechanical Engineering*) B.Tech., Indian Institute of Technology, Madras 2003; M.S., California Institute of Technology 2004.  
Thesis: Electronic Structure Calculations at Macroscopic Scales.
- Radhika Gowaikar (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Bombay 2001; M.S., California Institute of Technology 2002.  
Thesis: Wireless Networks: New Models and Results.
- Emilio Castaño Graff (*Aeronautics*) B.S., California Institute of Technology 2002; M.S., 2004.  
Thesis: On the Development of Defocusing Digital Particle Image Velocimetry with Full Characterization.
- Vijay Gupta (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Delhi 2001; M.S., California Institute of Technology 2002.  
Thesis: Distributed Estimation and Control in Networked Systems.
- Marcelo Joel Guzmán (*Environmental Science and Engineering*) Licenciado en Química, Universidad Nacional de Tucumán 2000; M.S., California Institute of Technology 2004.  
Thesis: Photochemistry of Pyruvic Acid in Water and Ice.
- Alan Nicolás Hampton (*Computation and Neural Systems*) M.S., Instituto Balseiro 1999.  
Thesis: Model-Based Decision Making in the Human Brain.
- Yong Hao (*Mechanical Engineering*) B.E., University of Science and Technology of China 2001; M.S., California Institute of Technology 2002.  
Thesis: Numerical Study of Single-Chamber Solid Oxide Fuel Cells.
- John Shelby Harmon III (*Materials Science*) B.S., The University of Texas at Austin 2003.  
Thesis: Experimental Studies of Elasticity, Plastic Flow, and Anelasticity in Metallic-Glass-Forming-Liquids.
- Alex David Holub (*Computation and Neural Systems*) B.A., Cornell University 2000.  
Thesis: Discriminative vs. Generative Object Recognition: Objects, Faces, and the Web.
- Xun Jiang (*Environmental Science and Engineering*) B.S., Nanjing Institute of Meteorology 1998; M.S., Peking University 2001; M.S., California Institute of Technology 2003.  
Thesis: I: Interannual Variability of Stratospheric Ozone and Temperature.  
II: Seasonal Cycle of N<sub>2</sub>O.

*Doctor of Philosophy continued*

- Zhipu Jin (*Electrical Engineering*) B.A., Tsinghua University 1998; M.S., 2000; M.S., California Institute of Technology 2002.  
Thesis: Coordinated Control for Networked Multi-Agent Systems.
- Arash Kheradvar (*Bioengineering*) M.D., Tehran University 2000; M.S., Azad University 2002.  
Thesis: The Role of Vortex Ring Formation and Pressure Drop on Dynamics of the Left Ventricle during Diastole.
- Theresa Hiromi Kidd (*Aeronautics and Applied Physics*) B.S., University of Illinois at Urbana-Champaign; M.S., California Institute of Technology 2003.  
Thesis: Mechanical Characterization of Damage and Failure in Polymeric Foams and Glass/Epoxy Composites.
- Joseph Thomas Klamo (*Mechanical Engineering and Aeronautics*) B.S., The University of Michigan 2001; M.S., California Institute of Technology 2002.  
Thesis: Effects of Damping and Reynolds Number on Vortex-Induced Vibrations.
- Robert D. Kolasinski (*Mechanical Engineering*) B.S., Rutgers University 2000; M.S., California Institute of Technology 2001.  
Thesis: Fundamental Ion-Surface Interactions in Plasma Thrusters.
- Abbas Komijani (*Electrical Engineering*) B.S., Sharif University of Technology 1995; M.S., 1997.  
Thesis: Microwave Integrated Phased-Array Transmitters in Silicon.
- Yashashree Kulkarni (*Applied Mechanics*) B.Tech., Indian Institute of Technology, Bombay 2001; M.S., California Institute of Technology 2002.  
Thesis: Coarse-Graining of Atomistic Description at Finite Temperature.
- Wei Lai (*Materials Science*) B.S., University of Science and Technology of China 1998; M.S., 2001; M.S., California Institute of Technology 2004.  
Thesis: Impedance Spectroscopy as a Tool for the Electrochemical Study of Mixed Conducting Ceria.
- Marco Latini (*Applied and Computational Mathematics and Aeronautics*) B.S., Harvey Mudd College 2001.  
Thesis: Simulations and Analysis of Two- and Three-Dimensional Single-Mode Richtmyer-Meshkov Instability Using Weighted Essentially Non-Oscillatory and Vortex Methods.
- Lun Li (*Electrical Engineering*) B.S., Tsinghua University 1999; M.S., University of California, Berkeley 2001; M.S., California Institute of Technology 2002.  
Thesis: Topologies of Complex Networks: Functions and Structures.
- Mo Li (*Applied Physics*) B.S., University of Science and Technology of China 2001; M.S., University of California, San Diego 2003.  
Thesis: Very High Frequency Nanoelectromechanical Resonators and their Chemical Sensing Applications.

*Doctor of Philosophy continued*

- Xin Liu (*Control and Dynamical Systems*) B.E., Beijing University of Aeronautics and Astronautics 1997; M.S., 2000.  
Thesis: Robustness, Complexity, Validation and Risk.
- Boonrat Lohwongwatana (*Materials Science*) B.S., Northwestern University 2000; M.S., California Institute of Technology 2002.  
Thesis: Development, Characterization, and Applications of Gold and Platinum Bulk Metallic Glasses.
- Laurence Loumes (*Aeronautics*) Diplôme d'Etudes Universitaires Générales, Université de Provence 1999; Licence Mecanique, 2000; M.E., École Centrale de Lyon 2003; M.S., California Institute of Technology 2003.  
Thesis: Multilayer Impedance Pump: A Bio-Inspired Valveless Pump with Medical Applications.
- George Manuel Maltezos (*Electrical Engineering*) B.S., Columbia University 2001; M.S., California Institute of Technology 2003.  
Thesis: Microfluidic Devices for Accessible Medical Diagnostics.
- Alfredo Martínez Estrada (*Control and Dynamical Systems*) B.S. (*Mathematics*), B.S. (*Physics*), University of Houston 1996.  
Thesis: A Treatise on Econometric Forecasting.
- Sotirios Konstantinos Masmanidis (*Applied Physics*) B.Sc., University College London 2001; M.S., California Institute of Technology 2003.  
Thesis: Piezoelectric and Magnetoelastic Strain in the Transduction and Frequency Control of Nanomechanical Resonators.
- Mortada Mehyar (*Electrical Engineering*) B.S., National Taiwan University 2001; M.S., California Institute of Technology 2003.  
Thesis: Distributed Averaging and Efficient File Sharing on Peer-to-peer Networks.
- Shu Miao (*Materials Science*) B.S., Tsinghua University 1999; M.S., 2002; M.S., California Institute of Technology 2004.  
Thesis: Electronic Structure and Bonding in Energy Storage Materials.
- Scott Brian Miserendino (*Electrical Engineering*) B.S., The Johns Hopkins University 2002; M.S., California Institute of Technology 2003.  
Thesis: A Modular Microfluidic Approach to Nano High-Performance Liquid Chromatography with Electrochemical Detection.
- Judith Mitrani-Reiser (*Applied Mechanics*) B.S., University of California, Berkeley 2000; M.S., University of Florida 2001.  
Thesis: An Ounce of Prevention: Probabilistic Loss Estimation for Performance-Based Earthquake Engineering.
- Bradford S. Morris (*Aeronautics and Astronomy*) B.Sc., University of Alberta 2001; M.S., California Institute of Technology 2002.  
Thesis: Charge-Exchange Collision Dynamics and Ion Engine Grid Geometry Optimization.

*Doctor of Philosophy continued*

- Seyed-Maziar Motahari (*Mechanical Engineering*) B.S., University of Tehran 1996; M.S., 1997; M.S., California Institute of Technology 2005.  
Thesis: Study of Constitutive Behavior of Ferroelectrics via Self-Consistent Modeling and Neutron Diffraction.
- Christopher Andre Mouton (*Aeronautics and Social Science*) B.S., The University of Texas at Austin 2001; M.S., California Institute of Technology 2002.  
Thesis: Transition between Regular Reflection and Mach Reflection in the Dual-Solution Domain.
- Matthew Mokihana Muto (*Civil Engineering*) B.S., Harvey Mudd College 2000; M.S., California Institute of Technology 2001.  
Thesis: Application of Stochastic Simulation Methods to System Identification.
- Shreesh Pranesh Mysore (*Control and Dynamical Systems and Neurobiology*) B.S., Indian Institute of Technology, Madras 1997; M.S., The Pennsylvania State University 1999.  
Thesis: Structural Plasticity in Neuronal Networks.
- Abbas Nasiraei Moghaddam (*Bioengineering*) B.S., University of Tehran 1995; M.S., 1998.  
Thesis: Measurement and Analysis of Structure and Function of Myocardium in Embryonic and Adult Heart.
- Arun Sridhar Natarajan (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Madras 2001; M.S., California Institute of Technology 2003.  
Thesis: Millimeter-Wave Phased Arrays in Silicon.
- AnnMarie Polsenberg Thomas (*Mechanical Engineering*) S.B., Massachusetts Institute of Technology 2001; M.S., California Institute of Technology 2002.  
Thesis: Exploration into the Feasibility of Underwater Synthetic Jet Propulsion.
- Joyce Kai See Poon (*Electrical Engineering*) B.Sc., University of Toronto 2002; M.S., California Institute of Technology 2003.  
Thesis: Active and Passive Coupled-Resonator Optical Waveguides.
- Steven Edmund Pracko (*Applied Physics*) B.A., Northwestern University 1995; M.S., California Institute of Technology 1998.  
Thesis: Laser Induced Fluorescence Measurements of Spheromak Plasmas.
- Chaitanya Kumar Rao (*Electrical Engineering*) B.S., University of Melbourne 2001; M.S., California Institute of Technology 2002.  
Thesis: Asymptotic Analysis of Wireless Systems with Rayleigh Fading.
- Michael Bernard Reiser (*Computation and Neural Systems*) B.S., University of Florida 2000; M.S., University of California, Berkeley 2002.  
Thesis: Visually Mediated Control of Flight in *Drosophila*: Not Lost in Translation.
- Christine Esber Richardson (*Applied Physics*) B.S., The Johns Hopkins University 1998; M.S., Stanford University 2000.  
Thesis: Low-Temperature Hot-Wire Chemical Vapor Deposition of Epitaxial Films for Large-grained Polycrystalline Photovoltaic Devices.

*Doctor of Philosophy continued*

- Michael Thomas Rubel (*Aeronautics and Applied and Computational Mathematics*) M.S., M.E., Rutgers University 1998; M.S., California Institute of Technology 1999.  
Thesis: A Theory of Stationarity and Asymptotic Approach in Dissipative Systems.
- Jennifer Lynn Ruglovsky (*Applied Physics*) B.S., Cornell University 2002; M.S., California Institute of Technology 2004.  
Thesis: Correlating Microscopic Ferroelectric Properties and Macroscopic Thin Film Device Performance.
- Elijah Bodhi Sansom (*Bioengineering*) B.S., The University of Arizona 2000.  
Thesis: Experimental Investigation on Patterning of Anchored and Unanchored Aligned Carbon Nanotube Mats by Fluid Immersion and Evaporation.
- Rebecca Beth Schulman (*Computation and Neural Systems*) S.B., Massachusetts Institute of Technology 1999.  
Thesis: The Self-Replication and Evolution of DNA Crystals.
- Nicole Smith Downey (*Environmental Science and Engineering*) B.S., Beloit College 2001; M.S., California Institute of Technology 2004.  
Thesis: Soil Uptake of Molecular Hydrogen and Remote Sensing of Soil Freeze and Thaw.
- Kazuo Sone (*Aeronautics and Applied and Computational Mathematics and Computer Science*) B.E., Kyoto University 1999; M.S., Georgia Institute of Technology 2000.  
Thesis: Modeling and Simulation of Axisymmetric Stagnation Flames.
- Abhishek Tiwari (*Electrical Engineering*) B.Tech., Indian Institute of Technology, Kanpur 2001; M.S., California Institute of Technology 2003.  
Thesis: Geometrical Analysis of Spatio-temporal Planning Problems.
- Angela Colleen Tooker (*Electrical Engineering*) S.B. (*Computer Science*), S.B. (*Electrical Engineering*), Massachusetts Institute of Technology 2000; M.Eng., 2002.  
Thesis: Development of Biocompatible Parylene Neurocages for Action Potential Stimulation and Recording.
- Christopher Thomas Veazey (*Materials Science*) B.S., Pacific University 2001; M.S., California Institute of Technology 2003.  
Thesis: Amorphous Metallic Foam: Synthesis and Mechanical Properties.
- Robert Joseph Walters (*Applied Physics*) B.S., Harvey Mudd College 2001; M.S., California Institute of Technology 2003.  
Thesis: Silicon Nanocrystals for Silicon Photonics.
- Bingwen Wang (*Mechanical Engineering*) B.Eng., Tsinghua University 1998; M.S., California Institute of Technology 2001.  
Thesis: Information-Theoretic Methods for Modularity in Engineering Design.
- Yajuan Wang (*Environmental Science and Engineering*) B.S., Tsinghua University 1999; M.S., California Institute of Technology 2003.  
Thesis: Studies on Environmental Relevance of Quorum Sensing Signal Decay.

## *Doctor of Philosophy continued*

- Xiaoliang (David) Wei (*Computer Science*) B.S., Tsinghua University 2001; M.S., California Institute of Technology 2004.  
Thesis: Microscopic Behavior of Internet Congestion Control.
- Masumi Yamada (*Civil Engineering and Geophysics*) B.E., Kyoto University 2001; M.E., 2003; M.S., California Institute of Technology 2004.  
Thesis: Early Warning for Earthquakes with Large Rupture Dimension.
- Byung-Jun Yoon (*Electrical Engineering*) B.S.E., Seoul National University 1998; M.S., California Institute of Technology 2002.  
Thesis: Signal Processing Methods for Genomic Sequence Analysis.
- Xin Yu (*Computer Science*) B.Eng., Tsinghua University 2000; M.S., California Institute of Technology 2002.  
Thesis: Reflection and Its Application to Mechanized MetaReasoning About Programming Languages.
- Lei Zhang (*Applied and Computational Mathematics*) B.S., Peking University 1999; M.S., Chinese Academy of Sciences 2002.  
Thesis: Metric Based Upscaling for Partial Differential Equations with a Continuum of Scales.
- Zhaoyu Zhang (*Electrical Engineering and Applied Physics*) B.S., University of Science and Technology of China 1998; M.S., 2001; M.S., California Institute of Technology 2006.  
Thesis: Towards Functional Miniaturized Lasers.
- Siyang Zheng (*Electrical Engineering*) B.S., Tsinghua University 1996; M.S., The Pennsylvania State University 2000; M.S., California Institute of Technology 2004.  
Thesis: On-Chip Blood Count.

## DIVISION OF GEOLOGICAL AND PLANETARY SCIENCES

- Vala Hjörleifsdóttir (*Geophysics*) B.S., University of Iceland 1999.  
Thesis: Earthquake Source Characterization Using 3D Numerical Modeling.
- Yongqin Jiao (*Geobiology*) B.S., University of Science and Technology of China 2001.  
Thesis: Physiological and Mechanistic Studies of Phototrophic Fe(II) Oxidation in Purple Non-sulfur Bacteria.
- Robert Evans Kopp III (*Geobiology*) S.B., The University of Chicago 2002; M.S., California Institute of Technology 2005.  
Thesis: The Identification and Interpretation of Microbial Biogeomagnetism.
- Liming Li (*Planetary Science*) B.S., Nanjing University 1998; M.S., Peking University 2001; M.S., California Institute of Technology 2004.  
Thesis: Dynamics of the Jovian Atmosphere from Observation and Theory.
- Sarah Ann Miller (*Geochemistry*) B.A., Wellesley College 2000; M.S., California Institute of Technology 2003.  
Thesis: Alkaline Earth Element Partitioning in Simplified Magmatic Systems.



## *Doctor of Philosophy continued*

Elisabeth Sophia Nadin (*Geology*) B.S., University of Rhode Island 1998; M.S., California Institute of Technology 2001.

Thesis: Structure and History of the Kern Canyon Fault System, Southern Sierra Nevada, California.

Julie Ann O'Leary (*Geochemistry*) B.S., University of Wisconsin 1999.

Thesis: Hydrogen Isotope Geochemistry of the Mantle: Constraints from Back Arc Basin Basalts and Mantle Xenoliths.

Zhimei Yan (*Geophysics*) B.S., Peking University 1996; M.S., 1999; M.S., California Institute of Technology 2001.

Thesis: Regional Mapping of the Crustal Structure in Southern California.

### DIVISION OF HUMANITIES AND SOCIAL SCIENCES

Delia Ruth Grigg Bailey (*Social Science*) B.A., University of South Carolina 2002; M.S., California Institute of Technology 2004.

Thesis: Essays on Causal Inference and Political Representation.

Jon Xabier Eguia Egusquiza (*Social Science*) Licenciatura, Universidad de Málaga 2002; M.S., California Institute of Technology 2004.

Thesis: A Theory of Elections and Voting Blocs.

Lauren Elizabeth Feiler (*Social Science*) B.A., Mount Holyoke College 2000; M.S., California Institute of Technology 2004.

Thesis: Behavioral Biases in Information Acquisition.

Sarah Anne Hill (*Social Science*) B.S., Texas A&M University 2002; M.S., California Institute of Technology 2004.

Thesis: The Pursuit of Equality through Education Finance Reform.

Ming Hsu (*Social Science*) B.A., University of Arizona 2001.

Thesis: Three Correlated Essays on the Neural Foundations of Economic Decision-Making.

Debrah C. Z. Meloso (*Social Science*) B.S., Universidad Católica Andres Bello 1998; M.S., Universidad Autònoma de Barcelona 2000.

Thesis: Prices, Holdings, and Learning in Financial Markets. Experiments and Methodology.

Deborah Elizabeth Sinclair (*Social Science*) B.S., University of Redlands 2002; M.S., California Institute of Technology 2004.

Thesis: Political Networks.

### DIVISION OF PHYSICS, MATHEMATICS AND ASTRONOMY

Panagiotis Aliferis (*Physics*) B.S., National University of Athens 2000; M.S., The University of Michigan 2002; M.S., California Institute of Technology 2005.

Thesis: Level-Reduction and the Quantum Threshold Theorem.

## *Doctor of Philosophy continued*

- George Dana Becker (*Astrophysics*) B.A., University of Virginia 1999.  
Thesis: A High-Resolution Study of the High-Redshift Intergalactic Medium.
- Andrew John Berglund (*Physics*) B.A., Dartmouth College 2000.  
Thesis: Feedback Control of Brownian Motion for Single-Particle Fluorescence Spectroscopy.
- Mihai Bondarescu (*Physics*) Diploma de Licenta, West University of Timisoara 2001;  
Diplom, Freie Universität Berlin 2001; M.S., California Institute of Technology 2003.  
Thesis: Topics in General Relativity.
- Parsa Hassan Bonderson (*Physics and Mathematics*) B.S., University of California, Los Angeles 2000; M.S., California Institute of Technology 2002.  
Thesis: Non-Abelian Anyons and Interferometry.
- Edward Tann Chen (*Physics*) A.B., Harvard College 1995.  
Thesis: Radiative Leptonic  $B$  Decays.
- Songye Chen (*Physics*) B.S., Peking University 1998; M.S., University of Houston 2000.  
Thesis: Structural Dynamics by Ultrafast Electron Crystallography.
- Megan Elizabeth Eckart (*Physics*) B.A., University of California, Berkeley 2000; M.S., California Institute of Technology 2002.  
Thesis: Measurements of X-ray Selected AGN and Novel Superconducting X-ray Detectors.
- Rebecca Joan Erwin (*Physics*) B.A., Amherst College 2002.  
Thesis: Neutrino Mass Constraints on Electroweak Parameters.
- Hua Fang (*Physics and Electrical Engineering*) B.S., Peking University 2000.  
Thesis: Topics in Gravitational Physics: Tidal Coupling in Gravitational Wave Searches and Mach's Principle.
- Paul Daniel Grayson (*Physics*) S.B. (*Mathematics*), S.B. (*Physics*), Massachusetts Institute of Technology 2001.  
Thesis: The DNA Ejection Process in Bacteriophage.
- Jennifer E. Kile (*Physics*) S.B., Massachusetts Institute of Technology 1998.  
Thesis: Constraints on Physics beyond the Standard Model and Its Observable Effects.
- Inna Kozinsky (*Physics*) A.B. (*Physics*), A.B. (*Mathematics*), Harvard College 2000.  
Thesis: Nonlinear Nanoelectromechanical Systems.
- Geoffrey Mark Lovelace (*Physics*) B.S., University of Oklahoma 2002.  
Thesis: Topics in Gravitational-Wave Physics.
- Dónal O'Connell (*Physics*) B.A., Trinity College, Dublin 2000; M.Sc., 2001; M.S., California Institute of Technology 2003.  
Thesis: Unusual Signs in Quantum Field Theory.

*Doctor of Philosophy continued*

- Ryan Christopher Ogliore (*Physics*) B.A., Claremont McKenna College 2000; M.S., California Institute of Technology 2002.  
Thesis: The Sulfur, Argon, and Calcium Isotopic Composition of the Galactic Cosmic Ray Source.
- Robert Philip Owen (*Physics*) B.S., University of Utah 2001.  
Thesis: Topics in Numerical Relativity: The Periodic Standing-Wave Approximation, the Stability of Constraints in Free Evolution, and the Spin of Dynamical Black Holes.
- Roberto Carlos Pelayo (*Mathematics*) B.A., Occidental College 2002.  
Thesis: Diameter Bounds on the Complex of Minimal Genus Seifert Surfaces for Hyperbolic Knots.
- Jonathan Robin Pritchard (*Physics*) B.A., M.Sc., Cambridge University, Pembroke College 2002.  
Thesis: Extracting the Cosmic History from Diffuse Backgrounds.
- Carlos H. Salazar-Lazaro (*Mathematics*) B.S., Rensselaer Polytechnic Institute 1999.  
Thesis: Association Schemes, Codes, and Difference Sets.
- Michael Phillip Salem (*Physics*) B.S., Case Western Reserve University 2002; M.S., California Institute of Technology 2004.  
Thesis: Topics in Theoretical Particle Physics and Cosmology.
- Janet D. Scheel (*Physics*) B.S., University of Illinois at Urbana-Champaign 1991; M.S., Cornell University 1994; M.A.T., 1995.  
Thesis: Rotating Rayleigh-Bénard Convection.
- Alicia Margarita Soderberg (*Astrophysics*) B.S., Bates College 2000; M.Sc., University of Cambridge 2001.  
Thesis: The Many Facets of Cosmic Explosions.
- John Kenton Stockton (*Physics*) B.S., Stanford University 1999.  
Thesis: Continuous Quantum Measurement of Cold Alkali-Atom Spins.
- Benjamin Francis Toner (*Physics*) B.S., The University of Melbourne 2001; M.S., California Institute of Technology 2004.  
Thesis: Quantifying Quantum Nonlocality.
- Ramon van Handel (*Physics*) M.Sc., Vrije University 2002.  
Thesis: Filtering, Stability, and Robustness.
- Peng Wang (*Physics*) B.S., Beijing University 2001.  
Thesis: Neutrino Mass Implications for Physics Beyond the Standard Model.
- Min Yang (*Physics and Social Science*) B.S., Peking University 1998; M.S., California Institute of Technology 2005.  
Thesis: Submillimeter Surveys of Galaxy Samples.



## PRIZES AND AWARDS

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*Prizes and awards are listed only for those students receiving degrees in 2007 and include prizes and awards received by them in previous years.*

### MILTON AND FRANCIS CLAUSER DOCTORAL PRIZE

Awarded to the Ph.D. candidate whose research is judged to exhibit the greatest degree of originality as evidenced by its potential for opening up new avenues of human thought and endeavor as well as by the ingenuity with which it has been carried out.

*Name of recipient to be announced at commencement.*

### FREDERIC W. HINRICHS, JR., MEMORIAL AWARD

Awarded to the seniors who, in the opinion of the undergraduate deans, have made the greatest undergraduate contribution to the welfare of the student body and whose qualities of leadership, character, and responsibility have been outstanding.

2007     *Jean Elizabeth Sun*

### MABEL BECKMAN PRIZE

Awarded to an undergraduate woman upon completion of her junior or senior year in recognition of demonstrated academic and personal excellence, contributions to the Institute community, and outstanding qualities of character and leadership.

2007     *Raquel Dagmar Vélez*

### GEORGE W. HOUSNER AWARD

Formerly the Sigma Xi Award, awarded to a senior selected for an outstanding piece of original scientific research.

2007     *Matthew David Fisher, Huan Yang*

*The four prizes above are announced at the commencement ceremony.*

ROSALIND W. ALCOTT MERIT SCHOLARSHIP, UPPER CLASS MERIT AWARD, CARNATION SCHOLARSHIP, AND JOHN STAUFFER MERIT SCHOLARSHIP

Each year Caltech awards these prizes for academic excellence to undergraduates. They are based solely on merit (selection is made on the basis of grades, faculty recommendations, and demonstrated research productivity) with no consideration given to need or any other nonacademic criteria.

2005	<i>Po-Ru Loh</i> <i>Yingkai Ouyang</i>		
2006	<i>Jimmy Zhe Jia</i> <i>Kevin Cossel</i> <i>Sukhada Sharad Fadnavis</i> <i>Daniel Fu</i> <i>Yuan Gong</i> <i>Kenneth Heafield</i>	<i>Anthony David Kelman</i> <i>Michael Kolodrubetz</i> <i>Po-Ru Loh</i> <i>Wen Mao</i> <i>Lydia Won Ying Ng</i> <i>Yingkai Ouyang</i>	<i>Harrison Samuel Stein</i> <i>Elisabeth Streit</i> <i>Zhan Jane Wang</i> <i>Huan Yang</i> <i>Yifan Zhou</i>
2007	<i>Yijia Chen</i> <i>Evelyn Joyce Cheung</i> <i>Kevin Cossel</i> <i>Matthew David Fisher</i> <i>Daniel Fu</i> <i>Benjamin Golub</i> <i>Yuan Gong</i> <i>Kenneth L. Ho</i> <i>Nicholas Richard Hutzler</i>	<i>Jimmy Zhe Jia</i> <i>Anthony David Kelman</i> <i>Michael Kolodrubetz</i> <i>Wei Li</i> <i>Kelly Ying Lin</i> <i>Victor Liu</i> <i>Po-Ru Loh</i> <i>Lydia Won Ying Ng</i> <i>Emma Rose Schmidgall</i>	<i>Harrison Samuel Stein</i> <i>Elisabeth Streit</i> <i>Rebecca Lydia Streit</i> <i>Truong-Dzuy Edward</i> <i>Truong-Cao</i> <i>Zhan Won Ying Wang</i> <i>Huan Yang</i> <i>Rumen Ivanov Zarev</i> <i>Yifan Zhou</i>

#### AXLINE MERIT SCHOLARS

Awarded to selected freshmen whose record of personal and academic accomplishment is judged outstanding among incoming freshmen. These scholarships are renewable, contingent on academic performance.

2004	<i>Benjamin Golub</i>	<i>Po-Ru Loh</i>	<i>John Paul Sadowski</i>
	<i>Yuan Gong</i>	<i>Lydia Won Ying Ng</i>	<i>Emma Rose Schmidgall</i>
	<i>Michael Kolodrubetz</i>	<i>Emily Russell</i>	<i>Vera Louise te Velde</i>

#### CHARLES D. BABCOCK AWARD

Awarded, by vote of the aeronautics faculty, to a graduate student whose achievements in teaching or other assistance to students have made a significant contribution to the aeronautics department.

2001	<i>Michael Thomas Rubel</i>
2004	<i>Laurence Loumes</i>
2005	<i>Michal Amaris Brown, Yashashree Kulkarni</i>
2007	<i>Samantha Hayes Daly</i>

#### ROBERT P. BALLE CALTECH MATHEMATICS SCHOLARS AWARD

Awarded to the mathematics major entering his or her senior year who has demonstrated the most outstanding performance in mathematics courses completed in the student's first three years at Caltech.

2006	<i>Po-Ru Loh</i>
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#### WILLIAM F. BALLHAUS PRIZE

Awarded to aeronautics students for outstanding doctoral dissertations.

2007	<i>Theresa Hiromi Kidd, Christopher Andre Mouton</i>
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#### BHANSALI PRIZE IN COMPUTER SCIENCE

Awarded to an undergraduate student for outstanding research in computer science in the current academic year.

2006 *Matthew David Fisher*

2007 *Siddharth Patel*

#### RICHARD G. BREWER PRIZE IN PHYSICS

Awarded to the freshman with the most interesting solutions to the Physics 11 “hurdles,” in recognition of demonstrated intellectual promise and creativity at the very beginning of his or her Caltech education.

2004 *Matthew David Fisher*

#### ROLF D. BUHLER MEMORIAL AWARD IN AERONAUTICS

Awarded to an aeronautics student for outstanding academic achievement in the Master’s program.

2007 *Daegyoun Kim, Celia Reina Romo*

#### FRITZ B. BURNS PRIZE IN GEOLOGY

Awarded to an undergraduate who has demonstrated both academic excellence and great promise of future contributions in the fields represented by the division of geological and planetary sciences.

2006 *Rebecca Lydia Streit*

#### THE W. P. CAREY & CO., INC., PRIZE IN APPLIED MATHEMATICS

Awarded to a student receiving a Doctor of Philosophy degree for an outstanding doctoral dissertation in applied mathematics or pure mathematics.

2007 *Lei Zhang*

#### BONNIE CASHIN PRIZE FOR IMAGINATIVE THINKING

Awarded each year to the entering freshman who has written the most imaginative essays in the application for freshman admission.

2000 *Chandra Moncoeur Barnett*



#### RICHARD BRUCE CHAPMAN MEMORIAL AWARD

Awarded to a graduate student in hydrodynamics who has distinguished himself or herself in research in the division of engineering and applied science.

2007 *Guillaume Alain Brès*

#### DONALD S. CLARK MEMORIAL AWARD

Awarded to two juniors in recognition of service to the campus community and academic excellence. Preference is given to students in the Division of Engineering and Applied Science and to those in Chemical Engineering.

2006 *Truong-Dzuy Edward Truong-Cao, Shai Barak, Rahul Deb*

#### THE DONALD COLES PRIZE IN AERONAUTICS

Awarded to the graduating Ph.D. student in aeronautics whose thesis displays the best design of an experiment or the best design for a piece of experimental equipment.

2007 *Emilio Castaño Graff*

#### DEANS' CUP AND CAMPUS LIFE AND MASTER'S AWARDS

Two awards, selected by the deans, the director of campus life, and the master of student houses, presented to undergraduates whose concern for their fellow students has been demonstrated by persistent efforts to improve the quality of undergraduate life and by effective communication with members of the faculty and administration.

2007 *Scott David Jordan, Yuliya Kuznetsova, Campus Life*  
*Arturo Alejandro Pizano, Dean's Cup*

#### DEMETRIADES-TSAFKA PRIZE IN BIOENGINEERING OR RELATED FIELDS

Awarded annually to a Ph.D. candidate for the best thesis, publication, or discovery in bioengineering or related fields during the past year. This prize is made possible by a gift from Anna Kokalis Demetriades and Sterge T. Demetriades (Eng. '58).

2007 *Jesse D. Bloom*

DEMETRIADES-TSAFKA PRIZE IN ENTREPRENEURSHIP OR RELATED FIELDS

Awarded annually for the best business plan or proposal, start-up, thesis, publication, discovery, or related efforts by student(s) in entrepreneurship or related fields. This prize is made possible by a gift from Anna Kokalis Demetriades and Sterge T. Demetriades (Eng. '58).

2007 *Ghyrn William Loveness*

DEMETRIADES-TSAFKA PRIZE IN NANOTECHNOLOGY OR RELATED FIELDS

Awarded annually to a Ph.D. candidate for the best thesis, publication, or discovery in nanotechnology or related fields at the Institute in the preceding 12 months. This prize is made possible by a gift from Anna Kokalis Demetriades and Sterge T. Demetriades (Eng. '58).

2007 *Jang Wook Choi, Robert Joseph Walters*

CONSTANTIN G. ECONOMOU MEMORIAL PRIZE

Awarded to a chemical engineering graduate student distinguished by outstanding research accomplishments and exemplary attitude while fulfilling candidacy requirements for the Ph.D. degree.

2003 *Inchan Kwon*

2004 *Aditya Satish Khair*

2005 *Derek William Bartlett*

EVERHART DISTINGUISHED GRADUATE STUDENT LECTURER AWARD

Awarded to a graduate student who has demonstrated exemplary presentation ability and graduate research.

2005 *Nelly Khidekel*

2007 *Samantha Hayes Daly, Tracy K. Teal*

LAWRENCE L. AND AUDREY W. FERGUSON PRIZE

Awarded to the graduating Ph.D. candidate in biology who has produced the outstanding doctoral thesis for the past year.

2007 *Gavin Erick Murphy*

RICHARD P. FEYNMAN PRIZE IN THEORETICAL PHYSICS

Awarded to a senior on the basis of excellence in theoretical physics.

2007 *Emily Russell*

HAREN LEE FISHER MEMORIAL AWARD IN JUNIOR PHYSICS

Awarded to a junior physics major who demonstrates the greatest promise of future contributions in physics.

2006 *Emily Russell*

HENRY FORD II SCHOLAR AWARD

Awarded either to the engineering student with the best academic record at the end of the third year of undergraduate study, or to the engineering student with the best first-year record in the graduate program.

2006 *Anthony David Kelman*

JACK E. FROEHLICH MEMORIAL AWARD

Awarded to a junior in the upper five percent of his or her class who shows outstanding promise for a creative professional career.

2006 *Po-Ru Loh, Emily Russell*

GRADUATE DEANS' AWARD FOR OUTSTANDING COMMUNITY SERVICE

Awarded to a Ph.D. candidate who, throughout his or her graduate years at the Institute, has made great contributions to graduate life and whose qualities of leadership and responsibility have been outstanding.

2007 *Andrea Martin Armani, Scott Brian Miserendino*

#### LUCY GUERNSEY SERVICE AWARD

Awarded to one or two students who have provided exceptional service to the Caltech Y and/or the community, are involved with service projects, have demonstrated leadership in community and volunteer service efforts, and who exemplify a spirit of service.

2006 *Radhika Gowaikar*

#### ARIE J. HAAGEN-SMIT MEMORIAL AWARD

Awarded to a sophomore or junior in biology or chemistry who has shown academic promise and who has made recognized contributions to Caltech.

2006 *Evelyn Joyce Cheung*

#### ALEXANDER P. AND ADELAIDE F. HIXON PRIZE FOR WRITING

Awarded annually in recognition of the best writing in freshman humanities courses.

2004 *Po-Ru Loh*

#### SCOTT RUSSELL JOHNSON PRIZE FOR EXCELLENCE IN GRADUATE STUDY IN MATHEMATICS

Awarded to continuing graduate students for excellence in one or more of the following: extraordinary progress in research, excellence in teaching, or excellent performance as a first-year graduate student.

2006 *Robert Carlos Pelayo*

#### SCOTT RUSSELL JOHNSON UNDERGRADUATE MATHEMATICS PRIZE

Awarded for the best graduating mathematics major. Special consideration is given to independent research done as a senior thesis or SURF project.

2007 *Po-Ru Loh*

#### D. S. KOTHARI PRIZE IN PHYSICS

Awarded to a graduating senior in physics who has produced an outstanding research project during the year.

2007 *Kevin Cossel*

#### MARGIE LAURITSEN LEIGHTON PRIZE

Awarded to one or two undergraduate women who are majoring in physics or astrophysics, and who have demonstrated academic excellence.

2005 *Emily Russell*

#### DOROTHY B. AND HARRISON C. LINGLE SCHOLARSHIP

Awarded to an incoming freshman in recognition of interest in a career in science or engineering, outstanding academic record, demonstrated fair-mindedness, and unquestioned integrity. This prize is renewable, contingent on academic performance.

2004 *Emily Russell*

#### THE HERBERT NEWBY McCOY AWARD

Awarded to chemistry doctoral students for outstanding contributions to the science of chemistry.

2007 *Theodor Agapie, Douglas C. Behenna, Julius Tsu-li Su*

#### MARY A. EARL McKINNEY PRIZE IN LITERATURE

Awarded to undergraduate students for excellence in writing in three categories: poetry, prose fiction, and nonfiction essays.

2004 *Rebecca Lydia Streit*

2006 *Daniel Michael McLaury, James Adler*

2007 *Jean Elizabeth Sun*

#### ROBERT L. NOLAND LEADERSHIP SCHOLARSHIP

Awarded to undergraduate students who exhibit qualities of outstanding leadership, which are most often expressed as personal actions that have helped other people and that have inspired others to fulfill their capabilities.

2007 *Neha Monica Das*

#### RODMAN W. PAUL HISTORY PRIZE

Awarded to a junior or senior who has displayed an unusual interest in and talent for history.

2007 *Emma Rose Schmidgall*

#### PRESIDENT'S SCHOLARS

Awarded to selected freshmen to promote the breadth and diversity of the Caltech undergraduate student body. The scholarships are renewable, contingent on academic performance.

2003 *David Joseph Simenc*

2004 *Issac Garcia-Munoz, Jaime Bango Garnica, Arturo Alejandro Pizano, Cameron P T Taketa, Raquel Dagmar Vélez*

#### HOWARD REYNOLDS MEMORIAL PRIZE IN GEOLOGY

Awarded to a sophomore or junior who demonstrates the potential to excel in the field of geology and who actively contributes to the quality of student life at Caltech.

2005 *Elisabeth Streit*

#### HERBERT J. RYSER MEMORIAL SCHOLARSHIPS

Awarded to undergraduate students for academic excellence, preferably in mathematics.

2005 *Po-Ru Loh, Benjamin Golub*

2006 *Grigori Avramidi, Nicholas Richard Hutzler, Po-Ru Loh*

#### RICHARD P. SCHUSTER MEMORIAL PRIZE

Awarded to one or more juniors or seniors in chemistry or chemical engineering on the basis of financial need and academic promise.

2007 *John Paul Sadowski, Zhan Jane Wang*

#### ELEANOR SEARLE PRIZE IN LAW, POLITICS, AND INSTITUTIONS

Awarded annually to an undergraduate or graduate student whose work in history or the social sciences exemplifies Eleanor Searle's interests in the use of power, government, and law.

2006 *Emma Rose Schmidgall*

2007 *Sarah Anne Hill*

#### ERNEST E. SECHLER MEMORIAL AWARD IN AERONAUTICS

Awarded to an aeronautics student who has made the most significant contribution to the teaching and research efforts of GALCIT (Graduate Aeronautical Laboratories of the California Institute of Technology). Preference is given to students working in structural mechanics.

2003 *Michael Thomas Rubel*

2004 *Theresa Hiromi Kidd*

#### DON SHEPARD AWARD

Awarded to students who would find it difficult, without additional financial help, to engage in extracurricular and cultural activities. The recipients are selected on the basis of their capacity to take advantage of and to profit from these activities rather than on the basis of their scholastic standing.

2005 *Catherine S. Chou, Benjamin John Sexson*

2006 *Sukhada Sharad Fadnavis, Sixin Samantha Lu*

2007 *Royal Anne Reinecke*

### JOHN STAGER STEMPLE MEMORIAL PRIZE IN PHYSICS

Awarded to a graduate student in physics for outstanding progress in research as demonstrated by an excellent performance on the oral Ph.D. candidacy examination.

2003 *Benjamin Francis Toner*

2006 *Juan Pedro Ochoa Ricoux*

### PAUL STUDENSKI MEMORIAL FUND PRIZE

A travel grant awarded to a Caltech undergraduate who would benefit from a period away from the academic community in order to obtain a better understanding of self and his or her plans for the future.

2007 *Elena Hartoonian*

### FRANK TERUGGI MEMORIAL AWARD

Awarded to an undergraduate student who honors the spirit of Frank Teruggi's life through participation "in the areas of Latin American studies, radical politics, creative radio programming, and other activities aimed at improving the living conditions of the less fortunate."

2007 *Jeffrey Steven Kranski*

### MORGAN WARD PRIZE

Awarded for the best problems and solutions in mathematics submitted by a freshman or sophomore.

2004 *Po-Ru Loh*

2005 *Po-Ru Loh, Benjamin Golub*



#### CHARLES WILTS PRIZE

Awarded to a graduate student for outstanding independent research in electrical engineering leading to a Ph.D.

2007 *Ao (Kevin) Tang, Ph.D. '06*

#### FREDRICK J. ZEIGLER MEMORIAL AWARD

Awarded to an outstanding sophomore or junior in pure or applied mathematics, for excellence in scholarship as demonstrated in class activities or in the preparation of an original paper or essay in any subject area.

2005 *Po-Ru Loh*

## DELEGATES

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### *Learned Societies and Academic Institutions*

1213 University of Oxford John H. Richards, Minnie McMillan	1831 New York University Herbert B. Keller
1284 University of Cambridge Gifford Combs	1838 Duke University Richard H. Patterson, Jr.
1636 Harvard University James F. Rothenberg	1846 Grinnell College Michael A. Giardello
1701 Yale University Christopher Hill	1853 University of Florida James P. Spoto, Jr.
1740 The University of Pennsylvania Gordon S. Bodek	1858 Iowa State University Richard F. Ross
1787 University of Pittsburgh Marguerite Renner	1861 Massachusetts Institute of Technology Kent Kresa
1793 The University of North Carolina at Chapel Hill Suzanne Lowe Weerts	1869 Purdue University Sangtae Kim
1794 École Polytechnique Patrick Le Tallec	1876 The Johns Hopkins University Christopher Kovalchick
1820 Indiana University Alex L. Sessions	1880 University of Southern California Yannis Yortsos
1829 Technical University of Denmark Lars Pallesen	1883 The University of Texas at Austin Bobby R. Inman

1885  
Georgia Institute of Technology  
G. Wayne Clough

1887  
Occidental College  
Robert Cody,  
Susan Westerberg Prager

1887  
Pomona College  
Gary Kates

1887  
Whittier College  
Barbara Groce

1892  
The University of Chicago  
Edward C. Stone, Jr.

1900  
Carnegie Mellon University  
Tuviah E. Schlesinger

1908  
Reed College  
Peter Norton

1911  
Tsinghua University  
Gu Binglin, Zhang Shuangnan,  
Zhang Yi

1919  
University of California, Los Angeles  
Roberto Peccei

1924  
Pasadena City College  
James P. Kossler

1926  
Scripps College  
Nancy Y. Bekavac

1930  
Art Center College of Design  
Richard Koshalek

1931  
Osaka University  
Chikaosa Tanimoto

1944  
University of California, Santa Barbara  
Henry T. Yang

1955  
Harvey Mudd College  
Maria Klawe

1962  
National Association of College and  
University Business Officers  
John Walda

1986  
Council on Competitiveness  
Deborah L. Wince-Smith

*In the oft practiced Baroque tradition of adapting  
a different text to the same music . . .*

## *There's Just One!*

*G.F. Handel\**

Hallelujah! Hallelujah! Hallelujah!  
Graduation, jubilation, the time has come.  
Hallelujah! Hallelujah!  
Exaltation, adulation, the time is now!

Graduates on this day we salute you!  
Sing praises, you've done it, it's over, hallelujah!  
For your accomplishments, we give honor.  
Sing praises, you've done it, it's over, hallelujah!

Praise on this day of great celebration!  
You've done it, you're through, no more take-homes, no problem sets,  
hallelujah!  
No thesis, no flicking, no flaming, no more work, hallelujah!  
No finals, no midterms, no more nights in the lab, hallelujah!

For there is life beyond quantum physics.  
For there is life beyond the house alleys.  
No research, no UASH, all-nighters are all gone,  
No classes, no letters from the Dean!  
Free weekends, real life begins!

With vision now go forth and seek a new horizon, and make your  
alma mater proud.

And she shall reign forever in science.

There's just one!

- in theories of protons, electrons and chem bonds.

Caltech can stun!

- in science with rigor, in research with vigor.

There's just one!

- in rockets, in astro, in seismo, in neurons.

Tech is the sun:

- with medals of science, with Nobel achievements.

There's just one!

- for ever exalted remember the Rose Bowl!

And now you're done, you have won, hail new alum.

And you shall spread Tech's passion for science.

New alum, Tech needs you, remit a sum, contribute!

For Tech to reign in science forever.

There's just one! A star of stars!

There's just one! Renown on Mars!

And Tech shall reign forever in science.

You've won the day, we shout hooray!

We honor your passion, your achievement, your triumph, hallelujah!

*\*Music: September 1741, George Frideric Handel*

*Text: April 2004, K. Giapis and D. Caldwell*

## *Hail CIT*

*(Caltech Alma Mater)*

by Manton Barnes, B.S. '21 E.E.

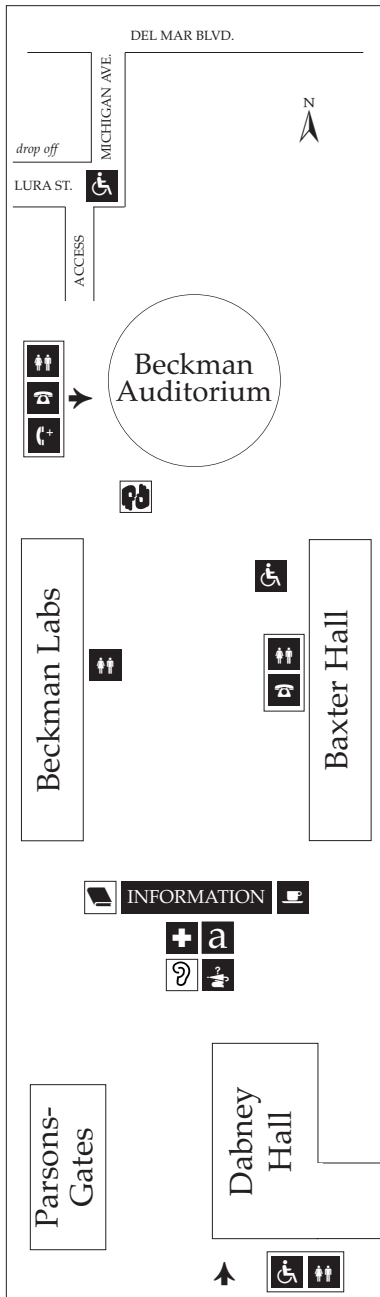
In Southern California with grace and splendor bound,  
Where the lofty mountain peaks look out to lands beyond,  
Proudly stands our Alma Mater, glorious to see;  
We raise our voices proudly, hailing, hailing thee.  
Echoes ringing while we're singing over land and sea,  
The halls of fame resound thy name, noble CIT.























## SERVICES FOR COMMENCEMENT GUESTS

-  PUBLIC TELEPHONES are available in Baxter Hall and Beckman Auditorium.
-  RESTROOMS are available in Baxter Hall, Beckman Labs, Dabney Hall, and Beckman Auditorium.
-  Information about the nearest location for FIRST AID SERVICES is available at the Information Center.
-  LOST AND FOUND items may be reported and/or claimed at the Information Center.
-  Complimentary COFFEE and PUNCH (beginning at 8:30 a.m.)
-  CALTECH BOOKSTORE sells souvenirs, film, and other items. ATHENAEUM luncheon tickets on sale 8–10 a.m.

## SPECIAL SERVICES FOR PERSONS WITH DISABILITIES

-  ASSISTIVE LISTENING DEVICES are available at the Information Center. A driver's license or state-issued ID card is required.
-  LARGE-TYPE PROGRAMS (abridged) are available at the Information Center.
-  AMERICAN SIGN LANGUAGE (ASL) interpreters are stationed at the west front of the ceremony seating area.
-  PEOPLE WHO USE WHEELCHAIRS, and their guests, will find a special section near the east front of the ceremony seating area.
-  RESTROOMS ACCESSIBLE TO PEOPLE WHO USE WHEELCHAIRS are located on the first floor of Dabney Hall and of Baxter Hall.
-  AMPLIFIED TELEPHONE is available in Beckman Auditorium.